The Canadian Medical Association Journal

VOLUME 78

JANUARY-JUNE 1958

Published by
THE CANADIAN MEDICAL ASSOCIATION

The Canadian Medical Association Journal

JANUARY 1, 1958 • VOL. 78, NO. 1

NEEDLESS LOSS OF VISION: ITS PREVENTION*

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IN CONSIDERING the possible conditions brought to mind by this provocative and stimulating title, it is reasonable to proceed chronologically and to think first of the infant and of those diseases occurring in early life which may give rise to loss of vision if left untreated, or if allowed to arise from controllable circumstances. The first of these is *ophthalmia neonatorum.*

Statutorily defined as an ocular infection arising in the first 21 days of life, this is one of those conditions which have been brought dramatically under control in comparatively recent years, though the incidence was considerably reduced by the introduction of prophylactic measures towards the end of the last century. In 1876 this disease was responsible for 30% of the inhabitants of blind institutions in Europe; 20 years later the figure had dropped to 19%, while today it is said that it reflects discredit upon those responsible if any infant is allowed to suffer visually from the results of this infection.

Prenatal hygiene can go a long way towards the prevention of ophthalmia neonatorum though I understand that the vaginæ of few women at the time of birth are free from a discharge which contains organisms of some degree of pathogenicity.[1] This is all the more reason for scrupulous prenatal care of a nature best known and practised by the other specialty; I would not presume to advise in detail in this direction. Until the advent of the sulfonamides and the antibiotics, prophylactic measures for the newborn consisted of the instillation of drops, and for years these drops were of silver nitrate 1%. Since the introduction of this method by Crédé coincided with the advent of a much greater interest in prenatal hygiene and postnatal care, it may well be that the actual method has received more credit than was really its due. There are some who say that the dropping of so strong a solution on to a newborn infant's cornea, which may not be destined to be in any danger from infection at all, is a therapeutically callous act of unjustifiable severity. A further sidelight on its value is thrown by an incident which I should like to recount. It was in the days of immediate prophylactic eye drops, and the midwife was instructed to put them in at once after birth, and even, if birth were delayed, to instil them into the eyes if these were available, without waiting for the arrival of the remainder of the child. This attitude must have introduced a note of hurry; on one occasion a midwife reached for the bottle and mistakenly picked up the one from the urine testing stand—she glanced at the label and saw NIT, but unfortunately the contents were nitric acid and not silver nitrate. The ritual was gone through; next day the baby was found to have sustained a slight burn of the right upper eyelid and of the left cheek; the eyes were providentially undamaged. I tell you this as a reminder to be careful to take into account all factors, including efficiency in execution, before attempting to assess the value of any routine form of therapy.

The introduction of sulfonamides and then of antibiotics completed the story of ophthalmia neonatorum finally and dramatically. An infant afflicted with this infection is given, say, 0.25 g. of sulfonamide, continued in 0.125 g. doses every four hours. Two nurses are detailed for the local treatment; all discharge is constantly and repeatedly wiped away, and penicillin instilled every few minutes for an hour, every 15 for two more, and then every half hour. By the end of the day the infection is under control and in a day or so it is extirpated. As a factor in the causation of blindness, ophthalmia neonatorum has statistically ceased to exist, and contributes no more than the occasional sporadic case as a reminder of omitted or inefficient treatment. From 30% of the blind, to nil; what a superlative story!

Equally statistically exciting, sociologically important and professionally gratifying is the story of my next subject, again infantile — *retrolental fibroplasia.* As research into this matter took shape and became common knowledge to ophthalmologists, we began to blame ourselves for labelling with the portmanteau term "pseudoglioma" a host of different conditions, including retrolental fibroplasia, which we should have been at greater pains to differentiate and investigate. I would remind you that that was, and indeed sometimes still is, the term given to a condition found in infants which we believe is due to prenatal or immediately postnatal intraocular infection. The vitreous is filled

*Presented at the Annual Meeting of the Canadian Medical Association, Edmonton, Alta., June 19, 1957.
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or partly filled with a yellowish-white mass which might suggest retinoblastoma were it not for other factors which preclude this diagnosis; the superficial resemblance, however, was used to justify the term pseudoglioma—purely descriptive and pathologically evasive. I submit, however, that we had not included cases of retrolental fibroplasia in this portmanteau category for long simply because I am sure that the interest in the pathology and the stimulus for research was preceded by a great increase in its incidence. This was doubtless due to the extra care and attention directed towards preserving the life of a premature baby, which more and more entailed the use of oxygen. It may be taken as proven, though there are details to be filled in, that oxygen concentration, with its influence on neo-vascularization, is basically responsible for this disease. Terry[2] (1942) was the first to draw attention to it, and pointed the way for research; Campbell[3] (1951) followed with some astutely applied investigations; and then workers in the U.S.A. and England, and notably Ashton[4, 5] (1954) and his co-workers, clinched the matter by a series of delicate, cleverly conceived and well-executed experiments. This cause of irrevocable loss of vision may be eliminated by careful attention to oxygen concentration administered to the premature infant, and by ensuring that treatment with oxygen is minimal, both in amount and in time. An interesting confirmatory sidelight on this statement of etiology is thrown by the following. In 1951 in my country 6925 infants were born weighing less than 4 lb. 6 oz.; 127 were cases of retrolental fibroplasia. Of these 6925 babies, 800 who were born at home—i.e. not within reach of institutional oxygen therapy—included no case of retrolental fibroplasia.

In 1954 in my country 43 infants up to the age of five were registered as blind from retrolental fibroplasia out of a total of 589 from all causes in that age group; in 1952 the figure was 60, and in 1948 and 1949 very much higher. On the other hand, I have not seen a new case of retrolental fibroplasia for some two years, and the same period has shown none admitted to Moorfields Eye Hospital for the usual examination under anæsthesia. It is another gratifying story.

The next group of conditions which might reasonably be considered on a chronological basis is the *hereditary and familial group of diseases and dystrophies,* including those with a less well established but still undeniable hereditary or familial element. This group includes the heredomacular degenerations, retinitis pigmentosa, glaucoma, optic atrophy, keratoconus, and myopia.

Myopia is a condition too well known to need description. It is, however, justifiable to point out that there are many different kinds of myopia linked together only by the common factor of the refractive error. This may merely exist as a characteristic and static fact, and as such demands no further attention from us. Then there is the progressive type of myopia which commonly goes on increasing in amount till puberty or after and then becomes stationary, not bearing any pathological evils in its train. Then again there is the progressive and "malignant" myopia, which commonly—though not always—progresses to a higher degree of refractive error than the previous kind; and is accompanied by the degenerative hæmorrhagic fundus changes of the relentless and devastating nature with which we are are all only too familiar. It is only that group which should occupy us today, as being a cause of loss of vision.

Retinitis pigmentosa is a ruthless and progressive disorder for which we have no useful treatment. Recently hopes were aroused by some published results of the effect of the topical application of an extract of the intermediate lobe of the pituitary gland,[6] but an attempt on my part to benefit a series of patients in this way has met with disappointment. The fundus picture of waxy-yellowish atrophy of the disc, attenuation of the vessels, and pigmentary disturbance of the fundus beginning in the equatorial zone, is well known to you. The patient's first complaint is often of diminishing ability to adapt on passing from light to semi-darkness; the field loss is then noted, and may progress to such a degree that, while retaining good macular vision, the victim has the sensation of looking down a tube, so small have the fields become.

So much for two of the conditions mentioned in my list — by no means a complete one, for it is possible to tabulate over 40 eye disorders which have a hereditary element in their occurrence. Many of these, of course, would not come under consideration today as causes of loss of vision, and it is not necessary for our present purpose to enumerate any more. What, you may well ask, is the relevance of reference at all, in a paper on the prevention of avoidable blindness, to any hereditary or familial condition for which no useful treatment exists? The answer is that, if one is trying scientifically to cover one's subject fully, it must be admitted that a condition with a hereditary basis could, in theory at least, be eliminated by the application of the theory and practice of eugenics. I am certainly not enough of a geneticist to take you any distance along this philosophical and sociological path. I will content myself by saying that it does not appear to me justifiable to legislate against, and to forbid a family to, a pair of citizens in whom a gene responsible for defects such as those which we are discussing may be suspected to be lurking. It is further undeniable that the eugenic elimination of myopia at some theoretical date in the past would unquestionably have robbed us of some of the finest intellects from which society has benefited. It is to be assumed that similar loss in the future might be expected to ensue from the institution of an ordinance directed to that end.

We are on different ground, however, and justified in a different attitude, when we consider the question of the congenital anomalies which may result from a *maternal infection by rubella* during pregnancy. The connection is undeniable and the risk appears to be far too great to ignore, and termination of pregnancy in a case of maternal rubella is justified. Whether the expedient, apparently adopted in some quarters, of the wholesale infection with rubella of the young and innocent members of a girls' school, as a prophylactic preliminary to matrimony and potential pregnancy and parturition, is a proper procedure is more open to question. The ocular congenital anomalies which may arise as a result of maternal rubella infection are cataract, microphthalmos, buphthalmos and pigmentary fundus degeneration.

One of the most important lines of prevention of loss of vision in infancy and childhood is the paying of judicious attention to an eye likely to be used to a less extent than its fellow. Nature appears to seize any opportunity for dereliction of visual duty, and only too often the result of disuse is loss of vision (amblyopia), though fortunately this can usually be recovered if the condition is discovered in time. What one means by the phrase "in time" cannot be exactly defined, for there is considerable individual variation from patient to patient; it is, however, reasonable to entertain the hope that one can restore vision to an eye suffering from disuse amblyopia up to the age of 10, and often at a later age than that.

The most usual cause of this type of loss of vision is, of course, squint. It is clearly impossible for two eyes not in alignment to avoid giving rise to diplopia; this feature is, however, very rarely met with in the chid, who soon learns unconsciously to avoid it by suppressing – or, better, neglecting – the vision of the crooked eye. It is this avoidance of physiological function which gives rise to the loss of vision through disuse or, as it is called, *amblyopia ex anopsia*. Here, then, is a plea for the final renunciation of the attitude of *dolce far niente* when an infant is seen with a squint. It *is* true that many infants squint, and that many infants' squints are but transient, and that the child may "grow out of it"; but it may not, and valuable time–and still more valuable vision–may be lost if nothing is done about it. It may be said that it is no part of a general practitioner's duty to undertake any part of the treatment of squint; I do not agree, but if that view is held, let us at least see that the patients go off for specialized advice without delay. The most that can be done in very early life–and sometimes no more is necessary to "cure" the squint–is to ensure that either eye is given the chance of doing its fair share of work and prevented from becoming "lazy", and this is achieved by occluding the "straight" eye, or in the very young by the insertion of atropine 1%, which usually has a similar effect. As soon as dominance has been overcome and the previously straight eye becomes the crooked one, occlusion is stopped and one waits to see what happens. Any subsequent tendency to persistent dominance of one eye with persistent deviation of the other is met by similar measures; the plaint of the parent, so often heard, that whereas their precious one started with a tendency to turn one eye, he or she now seems to be in a position to misbehave with either, is met by the rebuke that the next best thing to no squint at all is a squint which wanders from one eye to the other. May I repeat that? If it were really appreciated, there would be thousands fewer people with one useless eye. I am perfectly well aware of the orthoptic comment that there may be increased difficulty in establishing binocular single vision in an alternating squint; I sympathize; and repeat what I said above yet once more.

Strabismus or squint is not the only cause of loss of vision through relative or absolute disuse. This may occur from a wide difference of refractive error between the two eyes–a condition which does not obtrude itself upon the observer's notice if there is no deviation. A simple test for visual acuity may be carried out by doctor or parent on any child who knows his letters (or even before that time by the exercise of a little ingenuity) by the utilization of some homely device such as the titles of the books in the bookcase; if there is a marked discrepancy between the visual acuity of the two eyes, it may well be very important and the matter should be pursued. Correction of this anisometropia by glasses may well result in equal visual acuity in a very short time; of course, if the discrepancy is too great–say 10 diopters–one's aims may be defeated. But in either case, reference of the child to an ophthalmologist will enable him to eliminate an organic as opposed to a functional cause for the loss of vision, and this in itself justifies the procedure.

I would emphasize the importance of this aspect of prevention of loss of vision on account of its frequency and its clinical obscurity–for the angle of squint may be very small and practically or actually undetectable by simple means, and there is far more tendency for parents to think less seriously of a squint of small angle than of one of a larger angle. In relation to the aspect from which we are at present regarding this problem, it is clear that this is quite fallacious, and could lead to serious postponement of treatment.

A serious infantile disease which leads to loss of vision if untreated, and yields a heartening percentage of responses to early treatment, is the *elevation of intraocular tension* due to congenital malformation of the region of the globe responsible for the drainage of the aqueous humour–a condition which I continue to call buphthalmia, because the inevitable result of the raised tension is expansion and enlargement of the globe. Before this occurs, diagnosis is not possible by ordinary means of examination, and it is consolingly unlikely that

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much damage is done in this stage; any suspicion of pathological enlargement of an infant's eye, however, should be the signal for immediate reference to an ophthalmologist, more especially if this enlargement is accompanied by haziness of the cornea, however slight. There is sometimes a little delay in action on the parental side if this haze is absent, for there is a tendency for large eyes, especially in girl babies, to be looked on with a measure of maternal pride and satisfaction rather than suspicion.

This leads us to perhaps the most important part of my discourse, the consideration of *chronic simple glaucoma.* Congestive and acute glaucoma, accompanied as it is by redness of the eye, pain, and subjective visual disturbances such as obscuration and haloes, seldom leaves any doubt that something is seriously amiss and calling for instant action. This action normally leads to relief, and to the prevention of loss of vision which would otherwise be inevitable. Chronic simple glaucoma, on the other hand, is an insidious, sight-destroying disease which for the purposes of emphasis I am going to call symptomless—as indeed in many cases it may actually be. It needs a very astute and alert practitioner to spot the early stages of chronic glaucoma, which if undetected may pursue a symptomless and relentless course towards loss of peripheral visual field and eventually to blindness itself. Be on your guard for such signs as the frequent need for addition to the presbyopic correction, or a declared increasing difficulty in adaptation on going from a bright to a dim environment, especially in a patient with small-looking eyes in which the anterior chamber may appear shallower than normal. Ophthalmoscopic examination may confirm your suspicions by revealing early pathological cupping of the disc; examination of the visual field by confrontation, with a small piece of paper stuck in a pen-nib—there is no need for quantitative examination with complicated apparatus—may reveal a loss of part of the nasal field, upper or lower, giving further confirmation. No harm is done by reference of a patient of whom you are suspicious, if your suspicions turn out to be happily ill-founded; irrevocable harm may be done by delay if the disease is present. Tonometry affords only one method of investigation of a suspected case; its interpretation demands expert knowledge, and it may be misleading. I am not at all sure that I am in favour of the wholesale distribution of tonometers for use by general practitioners; their use emphasizes but one method of examination, possibly to the exclusion of others more important; and a "low" reading is not inconsistent with the presence of the disease, while a "high" one may certainly not be the signal for interference. An awareness of the possibility of the presence of this disease, and a general clinical survey and questioning such as I have indicated, are the best safeguards against disaster; while routine ophthalmoscopic examination may show early signs in the nerve heads of a patient when there are no other objective signs, and no subjective signs of any kind.

Miotics are useless in the treatment of buphthalmos; the results of operative interference are quite good; better than is generally supposed, and improving with improvements in technique. It is certain that loss of vision from this cause may be prevented in a high percentage of cases; that is even more true of the adult form of glaucoma, where in the primary type miotics may be used to temporize but operation is usually necessary, and gives very good results.

Some forms of *cataract,* another cause of loss of vision, may be prevented. The adequate treatment of such forms of intraocular inflammation as may give rise to complicated cataract will lessen the incidence; the avoidance of trauma, and the provision of protective devices for workers in those occupations where damage to the eye from flying particles is likely, are further potent preventive measures. The uncomplicated form of senile cataract is, however, a very common cause of loss of vision, accounting for some 25% of those on the Blind Register. In so far as we know of no medical measures which are effective in preventing the onset of this form of cataract, the matter might be considered to be outside our present scope; but it is important to consider that 80% of those blind from cataract in my country in the period under review (1951-54) had had no treatment of any kind, and it was estimated that 50% would benefit from operation. It may therefore be said that while the condition itself is not preventable, the ensuing loss of vision is largely preventable, and if the general condition permits, these patients should be given the chance of vision by operation.

The ravages of intraocular inflammation may be lessened by judicious and timely measures which will lessen the severity and perhaps retard the recurrence of an attack and thus prevent loss of vision. The early diagnosis of iritis, and prompt treatment by mydriatics to prevent the formation of adhesions and exudate on the lens surface, will go a long way towards this end; the diagnosis of a low-grade anterior uveitis will lead to its early recognition and treatment, with an improved prognosis.

An interesting problem arises when a patient complains of flickering in the peripheral field. This is so often of no account that one may be inclined to ignore it; but every now and again these subjective symptoms herald an imminent *detachment of the retina.* While I would certainly not go so far as to say that all patients who describe such sensations should be looked on as potential detachments and treated by recumbency and padding, yet I would put in a plea for the careful examination of the peripheral fundus under a mydriatic, if only for the reason that the operative prognosis is so very much better for the limited and recent

detachment than it is when the detachment is extensive and older.

A final word on *trauma*. There is no doubt at all that some cases of untreated, maltreated, or late-treated injury have worse final vision than they might have had if earlier and more energetic measures had been instituted. Even the simplest injury demands care, for the occasional one goes the wrong way, to the detriment of vision; the corneal foreign body site or corneal abrasion becomes infected by conjunctival pathogens, an ulcer develops, and disaster may ensue. Scrupulous care is necessary to protect the eye by means of antiseptic or antibiotic applications, and careful subsequent attention must be given in case the need develops for more active measures. Suspected perforating injuries must be most carefully examined so that every measure may be taken to place the eye in the most advantageous position for healing and also to prevent the onset of the sinister and ever possible sympathetic ophthalmia. If intraocular hæmorrhage has occurred, local and general rest are enforced, for absorption may be delayed or recurrence encouraged by activity, to the detriment of the ultimate visual prognosis.

A false picture may be presented by the eye which has suffered a non-penetrating injury as by a ball or blunt stick, for it may appear quite undamaged to external examination. Dilatation of the pupil, however, and fundus examination may reveal those œdematous, exudative, and hæmorrhagic changes which go by the name of *commotio retinæ*. Though admittedly there is sometimes visual loss even after careful treatment, none the less the eye should be put at absolute rest when these changes are seen so as to give it every opportunity for complete recovery, which will minimise the hazard of visual loss.

In no branch of medicine is the superiority of prevention over cure more obvious than in ophthalmology; in no part of this subject is this more true than on the traumatic side. Innumerable eye accidents leading to loss of vision occur annually in industry, of which the great majority could be prevented by the wearing of protective devices by the worker. The design and provision of these devices has reached a high level in my country; constant and unremitting effort is required to break down the firm prejudice against their use by the worker. The campaign continues; it must be realized that legal pressure is not brought to bear upon the employee to wear these protective devices, but his injury at work is the legal responsibility of the employer. This fact does not make the situation any easier, or facilitate the necessary propaganda.

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RÉSUMÉ

L'ophtalmologie préventive s'exerce à supprimer les causes de cécité. Les mesures prophylactiques ont permis de réduire la fréquence de l'ophtalmie du nouveau-né, d'abord par les soins apportés à la mère pendant la grossesse, et ensuite, par la pratique introduite par Crédé d'instiller des gouttes de nitrate d'argent à 1% dans les yeux du nourrisson dès sa naissance. Le nitrate d'argent a maintenant été remplacé par les sulfamidés ou la pénicilline. L'évolution de la fibroplasie rétrolentaire a marché de pair avec l'ampleur des soins donnés aux prématurés jusqu'aux travaux d'Ashton en 1954. L'emploi rationnel d'oxygène a depuis virtuellement supprimé cette affection. La myopie existe sous plusieurs formes qui n'ont en commun que l'erreur de réfraction. En plus de celle qui progresse pendant l'enfance pour ensuite se stabiliser à la puberté, la myopie progressive et maligne ne sait plus s'arrêter et entraîne une dégénérescence hémorragique du fond de l'oeil. La rétinite pigmentaire est un processus pathologique qui échappe encore à tout traitement. Parmi les rares anomalies congénitales sur lesquelles nous avons quelque influence se trouve celles qui résultent d'une infection materne'le par la rubéole pendant la grossesse. Les deux ressources qui nous sont offertes dans ces cas sont ou bien l'interruption de la grossesse, ou l'infection controlée des jeunes filles avant l'âge nubile. Il est d'importance primordiale de corriger l'amblyopie avant qu'elle ne s'établisse. L'essentiel consiste donc à dépister les états qui tendent à supprimer la fonction normale d'un oeil. Les yeux bigles sont le plus souvent en cause. Si la correction du strabisme n'est pas du ressort de l'omnipraticien, il lui incombe tout de même de diriger le malade vers un oculiste qui saura lui apporter les soins appropriés. Une forte différence de l'état refractif entre les deux yeux peut entraîner les mêmes résultats. L'élévation de la tension intraoculaire causée par une malformation congénitale s'opposant à l'écoulement normal de l'humeur aqueuse mène à la buphtalmie. Le traitement précoce de cette affection donne des résultats encourageants. Alors que le glaucome aigu attire immédiatement l'attention par l'intensité de ses symptômes, le glaucome primitif chronique est souvent un processus silencieux et insidieux puisqu'il aboutit à la disparition de la fonction visuelle. Une presbytie qui requiert la correction fréquente de l'erreur d'accommodation doit éveiller l'attention. L'examen ophtalmoscopique peut révéler une excavation de la papille et la mesure des champs visuels peut montrer un rétrécissement nasal. Le tonomètre de Schioetz est d'un emploi compliqué; ses données, si la tension est élevée, ne sont pas les seuls signes diagnostiques de cette affection. Rappelons que si l'évolution des différents genres de cataractes ne peut être enrayée, on peut cependant prévenir le déficit visuel qu'elles entraîneraient si elles étaient laissées à elles-mêmes. Il en va de même des inflammations intraoculaires comme l'iritis, ainsi que des détachements de la rétine et des diverses formes de traumatismes oculaires.

AUSCULTATION OF FAINT HEART MURMURS

Earlier diagnosis of valvular heart disease is facilitated by attention to the fainter, less obvious murmurs during auscultation. This is becoming more and more important. The major factors determining one's ability to hear faint murmurs are discussed by Groom (*Postgrad. Med.*, 22: 360, 1957), notably the characteristics of human hearing and of stethoscopes, and technique of auscultation.

Background noise is likewise a determining factor, as shown by a study of the thresholds of audibility of 40 physicians. Measurements with a sound-level meter of the background noise levels on busy hospital wards and in clinic examining rooms indicate that these environments are not as quiet as is generally supposed and are not conducive to accurate cardiac auscultation.

The author considers that drastic reduction of such environmental noise will greatly enhance ability to detect faint heart murmurs.

THE EARLY DETECTION OF GLAUCOMA* RESULTS OF 2000 ROUTINE TONOMETRIES

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A FUNDAMENTAL CHANGE in attitude to the diagnosis of glaucoma has been taking place in the last few years. A decade ago glaucoma was suspected by an ophthalmologist only if the patient complained of symptoms such as haloes, blurring of vision or restriction of the visual field; or if on examination the optic disc showed changes suggesting glaucomatous atrophy. The diagnosis depended largely upon finding evidence of degeneration caused by the glaucomatous process in the form of characteristic visual field loss and glaucomatous atrophy of the optic nerve head.

The present tendency is to try to make the diagnosis before these tombstones to dead optic nerve fibres are evident. Since World War II much basic research has led to a better understanding of the various types of glaucoma and their natural history. The introduction of the electronic tonometer for measuring the ocular tension has permitted the development of new techniques of investigation and a better appreciation of the fundamental importance of elevated intraocular pressure in the evolution of the glaucomatous process. A practical and valuable result of this knowledge is the introduction of routine tonometry as part of an ophthalmic examination.

We shall review recent statistics concerning the prevalence of glaucoma and the incidence of blindness caused by it. Some of the techniques used in the diagnosis of its early stages will be mentioned. Routine recordings of the ocular tension of 2000 patients over the age of 40 have been carried out in our practice and these results are presented.

The Incidence of Glaucoma

A number of surveys by tonometry have been reported, chiefly from the United States of America. These have indicated that about 2% of the people over the age of 40 have glaucoma. The incidence increases with age, and Koskenoja and Orma[1] have reported finding the disease in 4.6% of 600 patients over the age of 64. Most of these patients were unaware of the presence of the disease. Table I lists some reports of surveys carried out on people over the age of 40.

As a result of these reports an increasing number of ophthalmologists perform tonometry as part of every ophthalmic examination of a patient over the age of 40. Table II summarizes three reports on results of tonometry in clinical practice.

Blindness Caused by Glaucoma

Glaucoma is a condition which cannot be cured. Once it develops, the patient will have glaucoma for the remainder of his or her life, and without treatment vision slowly fails.

Zeller and Christensen[10] report that in the United States there are 150,000 persons blind in one eye and 20,000 persons totally blind from glaucoma. In England 13.6% of blindness is due to glaucoma.[11]

TABLE I.

Date	*Authors*	*Number surveyed*	*Results*
1950	Berens, C. and Tolman, C.P.[2]	10,500	2.7% ocular hypertension.
1951	Brav, S. S. and Kirber, H. P.[3]	10,000	1.53% definite glaucoma, 0.7% borderline cases.
1952	Buesseler, J. A., Andrews, A. C. and Schreuder, O. B.[4]	238	2.9% ocular hypertension referred for investigation.
1954	Wolpaw, B. J. and Sherman, A. W.[5]	12,803	2% definite glaucoma.
1955	Vaughan, D. G.[6]	1000	1.9% definite glaucoma.

In Canada[12] 10.6% of all cases of blindness are due to this disease. These figures indicate the importance of this disease and the necessity of early diagnosis and treatment in an attempt to prevent blindness.

Detection of Early Glaucoma

When glaucoma is advanced the optic disc becomes cupped and atrophic and is always associated with characteristic visual field defects. Such cases are unlikely to be missed on routine examination.

Early cases in which vision is not yet damaged and there is no optic atrophy are liable to be overlooked. But these are the very cases which it is so important to discover before permanent visual loss occurs.

The intraocular pressure varies throughout the day, particularly in glaucoma. In the early stages of glaucoma it may rise slightly above normal level for a short period only and the patient may experience no discomfort whatsoever, but gradually over a period of months or years the base line of intraocular pressure rises and visual field defects develop.

Routine tonometry of all patients over the age of 40 appears to be the best way of discovering these early cases because it enables the early rise of intraocular pressure to be detected. It is not,

*From the Department of Ophthalmology, Winnipeg Clinic, Winnipeg.

TABLE II.

Date	*Authors*	*Number of patients*	*Glaucoma diagnosed before tonometry*	*Cases of glaucoma which would have been missed without routine tonometry*
1949	Phelps, G. D.[7]	720 over 45 years of age	2.5%	2.6%
1956	Bendor-Samuel, J. E. L. and Reed, H.[8]	1000 over 40 years of age	1.7%	1.8%
1957	Hildreth, H. R. and Becker, B.[9]	2000 over 40 years of age	Not included	2.1%

however, infallible because patients may be examined when the intraocular pressure is within normal limits, so that the diagnosis is missed.

Tonometry is a simple test which causes the patient little or no inconvenience and takes no more than two minutes to perform. A nurse may be readily trained to do it. The patient is asked to lie flat on a table or couch and gaze at a dim fixation light vertically above the head. Two drops of Pontocaine 0.5% are instilled into the conjunctival sac of each eye. These anæsthetize the eye to light touch almost at once. The tonometer is allowed to rest on the cornea and the deflection of the central plunger is read on the scale. The ocular tension is determined by consulting a table which converts the simple reading into a pressure.

Importance of Early Diagnosis

In 1948, Kronfeld and McGarry[13] published a careful five-year follow-up of a large series of patients with glaucoma. When the glaucoma was detected in a late stage, vision continued to fail in 50% of patients despite treatment. But when the disease was detected in an early stage and the patient conscientiously used miotic eyedrops, 81% showed no visual deterioration in five years.

Confirmation of Diagnosis in Early Cases

When a raised intraocular pressure is found, a number of methods of investigation may be employed to confirm the diagnosis.

(a) Gonioscopy

By means of a special lens, a goniolens, it is possible to look directly into the angle between the iris and the corneoscleral junction. Two types of angle may be seen in glaucoma, viz., a narrow or "closed" angle (Fig. 1) and a wide or "open" one (Fig. 2). These two types of glaucoma differ fundamentally in etiology, course and treatment.

Narrow-angle glaucoma tends to give rise to acute attacks of increase of intraocular pressure with pain, blurring of vision and the appearance of rainbow-like rings around lights, usually called haloes. Wide-angle glaucoma is a slowly progressive symptomless disease and the condition may be advanced before the patient is aware that anything is wrong with his sight.

(b) Repeated Tonometry

The patient may be asked to return at regular intervals for tonometry. If the pressure is above 30 mm. of mercury on several occasions, the case is almost certainly one of glaucoma.

(c) The Water Drinking Test

The patient attends in the morning without having had food or drink. After the intraocular pressure has been recorded, the patient drinks a quart of water and tonometry is repeated every 15 minutes. A rise of more than 6 mm. of mercury within the first hour is considered diagnostic of simple or wide-angle glaucoma.

(d) Mydriatic Test

This is particularly valuable in closed or narrow-angle glaucoma. In this condition the filtration angle is narrow and dilatation of the pupil may bring the iris into contact with the cornea and close the angle. In this test a mydriatic is instilled and the pressure is taken every 15 minutes for two hours. A rise of more than 6 mm. of mercury is considered to be positive.

(e) Tonography

The patient lies supine on a couch, the cornea is anæsthetized and a tonometer is allowed to rest upon it for four minutes. The pressure forces aqueous humour out of the eye and intraocular pressure falls. If there is any obstruction to aqueous outflow, the fall in pressure will be less than normal. The rate of fall in pressure is used to calculate the coefficient of facility of outflow from a formula. This indicates the rate at which aqueous is able to escape from the eye. A coefficient of less than 0.15 is considered to indicate the presence of glaucoma.

Becker[14] has recently introduced a new mathematical concept, the ratio Po/c, where Po = first intraocular pressure reading, and c = coefficient of facility of outflow of aqueous found on tonography. He pointed out that in borderline cases neither the tonometric reading nor the tonographic facility of aqueous outflow may be conclusive, whereas the ratio between the two may be of greater value. In a large number of cases of proven glaucoma he found only three in which after a water drinking test this ratio was less than 100. Hence if this ratio is above 100, glaucoma is considered to be present.

Canad. M. A. J.
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RESULTS OF ROUTINE TONOMETRY IN 2000 PATIENTS OVER THE AGE OF 40

When we first began to record our results of routine tonometry, only patients with a tension of 28 mm. of mercury or more were investigated for glaucoma. After analyzing our first 1000 cases[8] we decided to investigate all patients with a tension of 25 mm. of mercury or more. The change was made after 1400 routine tonometries. It is too early to assess whether this has resulted in finding an increased incidence.

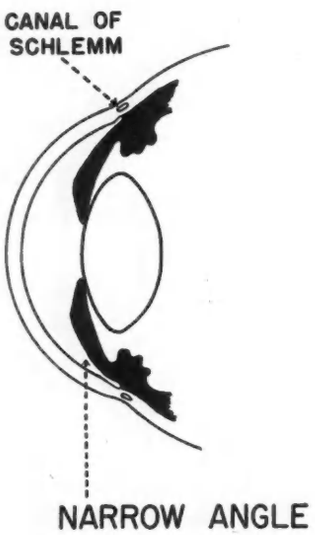

Fig. 1

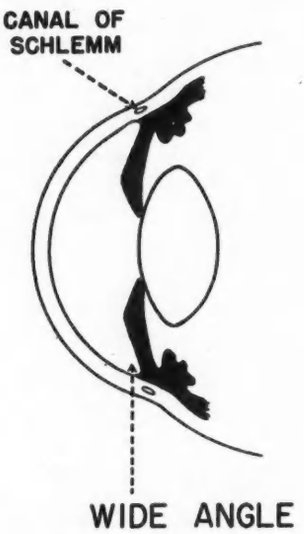

Fig. 2

A special note was made on each case record when the history or clinical findings suggested a diagnosis of glaucoma before the ocular tension was measured. In this way we were able to determine the number of cases we would have missed were it not for routine tonometry.

When the intraocular tension was found to be raised on routine tonometry, we usually proceeded to examine the angle of the eye. If the angle was narrow, a mydriatic test was performed. A water drinking test was carried out if the angle was wide. When patients lived at a distance, or were elderly and infirm or suffering from other diseases, full investigation was not always possible. A single positive diagnostic test was rarely accepted as conclusive. The following criteria were adopted for making a diagnosis of glaucoma:

1. A pressure of 40 or over at any time.
2. Pressure recordings over 30 on three or more occasions.
3. A positive water drinking test.
4. A positive mydriatic test.
5. A tonographic value for the facility of outflow of less than 0.15.
6. A ratio Po/c of more than 100.

Two thousand routine ophthalmic examinations of patients over the age of 40 were carried out during the period under review and routine tonometry was performed in all cases. Twenty-eight cases of glaucoma were diagnosed on the history and clinical examination before tonometry was performed. The remainder were found to have no clinical evidence of glaucoma but 71 of these patients had an intraocular tension in one or both eyes above the level we arbitrarily chose as the upper limit of normal. Table III summarizes the results of the investigation of these patients.

Thirty patients were considered to have glaucoma. In 13 the investigations were negative, seven cases are still being followed up as doubtful and 21 failed to attend for investigation. We consider it likely that most of the seven doubtful cases will later develop definite signs of the disease. Thus about 2% of the patients over the age of 40 had early glaucoma without symptoms or obvious clinical signs.

TABLE III.—ANALYSIS OF 71 PATIENTS WHO WERE CLINICALLY NORMAL BUT HAD RAISED INTRAOCULAR TENSION ON ROUTINE TONOMETRY.

Number of cases whom investigation showed to have glaucoma	30	1.5%
Patients in whom investigations were negative	13	0.7%
Patients still being followed as probable cases of glaucoma	7	0.4%
Patients who failed to attend for investigation	21	1.0%

The results of the investigations in the 30 clinically normal patients in whom glaucoma was considered to be present are summarized in Tables IV, V and VI.

TABLE IV.

Gonioscopy		Pressure over 30 mm. Hg on more than 3 occasions	Typical glaucomatous field defects
Wide angle	Narrow angle		
24	6	22 patients	5 patients

Only six patients had narrow angles. It is a common observation that there are relatively more wide-angle glaucomas than narrow-angle glaucomas. Five patients had field defects. Twenty-five cases were therefore discovered before visual failure was evident.

Results of Provocative Tests

TABLE V.

	Water drinking test	Mydriatic test
Positive	10	3
Negative	6	1
Total	16	4

These two provocative tests are of great value and in a doubtful case will often prove conclusively that glaucoma is present. A negative result does not necessarily exclude the disease.

Results of Tonography in 23 Patients

TABLE VI.

Reduced coefficient of facility of outflow of aqueous	Po/c ratio above 100
18 cases	20 cases

We have found tonography of great value both in diagnosis and in assessing the effectiveness of miotics. Occasionally it is not possible to perform tonography on an elderly nervous patient who is unable to lie or keep the eye still. A diagnosis of glaucoma was never made on a single positive tonography. Miotic therapy increases the coefficient of facility of outflow of aqueous, and tonography at intervals during treatment gives a good index of the degree of control of the intraocular pressure.

COMMENT

As a result of our experience we consider that tonometry is an essential part of an ophthalmic examination of patients over the age of 40. In 2000 routine ophthalmic examinations 2.9% of patients had proven glaucoma. Of these about one early case would have been missed for every one recognized were it not for routine tonometry.

DISCOVERY OF UNRECOGNIZED GLAUCOMA

Routine tonometry by ophthalmologists is only part of the answer to this problem of unrecognized glaucoma. Many patients attend optometrists who are unable to perform tonometry because legislation does not permit them to use anæsthetic agents. It would, however, be no solution to recommend that all patients over the age of 40 should therefore attend ophthalmologists for refraction so that tonometry might be performed. There are not enough ophthalmologists available to cope with the great number of refractions that would be required.

One answer to this problem is to encourage general physicians to include tonometry as part of every routine physical examination of patients over the age of 40. If the ocular tension is raised, the patient should be referred to an ophthalmologist for investigation.

Recently the Ophthalmological Foundation[16] in New York sponsored a nation-wide scheme to encourage general physicians to perform tonometry. More than 5000 physicians are now co-operating in this project. We feel that this is a practical approach to this important problem and that it deserves the widest publicity.

Probably the most effective answer to this problem is to teach undergraduates to perform tonometry. Thirty-five medical schools are co-operating with the Ophthalmological Foundation and make a special feature of teaching undergraduates the importance of routine tonometry in patients over the age of 40. It is our opinion that all medical schools should teach this simple test to the physicians of tomorrow.

SUMMARY

Two per cent of persons over the age of 40 have unrecognized glaucoma.

Routine tonometry is the best method of discovering these unrecognized cases.

In 2000 routine ophthalmic examinations 3% of patients above 40 years of age were found to have glaucoma. Of these one would have been missed for every case recognized on clinical examination were it not for routine tonometry.

It is probable that about 100,000 Canadians have unrecognized glaucoma.

We believe that general physicians should learn to perform this simple test and include it in every physical examination of patients over the age of 40.

Medical schools should make sure that all undergraduates receive adequate instruction in the performance of tonometry as a public health measure.

Our thanks are due to Mrs. Greta Penchuk and Mrs. Marina Klotz, who cheerfully performed so many tonometries for us.

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RÉSUMÉ

L'emploi du tonomètre électronique demande si peu de préparation que cet examen est maintenant pratiqué de routine dans certains départements d'ophtalmologie pour le dépistage du glaucome. Les auteurs font part ici des résultats de l'examen tonométrique de 2000 malades âgés de 40 ans et plus. Des enquêtes menées aux Etats-Unis montrent qu'environ 2% de cette partie de la population sont atteints de glaucome. En Angleterre 13.6% de tous les aveugles le sont devenus par cette cause. Lorsque les signes cliniques communément énumérés sont apparus, il est souvent trop tard pour enrayer une obnubilation visuelle permanente. Dans le glaucome chronique à ses débuts, la tension intraoculaire n'est pas uniformément élevée, et comme elle subit aussi des variations quotidiennes dans l'œil normal, ce moyen de dépistage que fournit la tonométrie n'est pas infallible. Il faut donc répéter l'examen à quelques reprises s'il subsiste le moindre doute. Dans les cas où la tension est élevée, l'examen au gonioscope permet de mesurer l'angle irido-cornéen de la chambre antérieure. Un angle plus petit que la normale s'observe dans glaucome aigu alors que le glaucome chronique donne un angle plus obtus. Pour toutes fins pratiques une tension intraoculaire supérieure à 30 mm. de mercure est diagnostique de glaucome. Parmi les variations auxquelles se prête l'examen, on peut compter la hausse que produit l'ingestion d'un litre d'eau ou l'instillation de mydriatique. La tonographie continue qui enregistre pendant quatre minutes les variations de pression chez un sujet couché doit montrer une certaine chute de tension. Lorsque le coefficient de chute est inférieur à la normale, on peut prétendre à un obstacle dans l'évacuation de l'humeur aqueuse. Les critères diagnostiques basés sur cette méthode sont développés dans le texte. Comme on estime à 100,000 le nombre de canadiens atteints de glaucome occulte, les auteurs préconisent un emploi plus étendu de la tonométrie dans l'espoir de diminuer la fréquence de cette affection.

HEMIPLEGIC MIGRAINE*

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THE COLLECTION of symptoms known as migraine can be divided into three fairly distinct phases, i.e. the aura, the pain, and the associated symptoms. The aura may consist of a simple change in mood —irritability or mild euphoria—or of visual symptoms. Perhaps the most common auræ are the visual and these are followed, either rapidly or after a short interval, by the pain. With the onset of the pain, or after it has been present for some time, a host of minor and variable symptoms sometimes appear. These latter symptoms, such as nausea, vomiting, double vision, photophobia, hypersalivation, drowsiness or compulsive sleep, may be totally absent.

The disturbances of vision are extremely variable and may consist of a progressive homonymous, altitudinal, or heteronymous hemianopsia, expanding central scotomata, or progressive constriction of the fields from the periphery leading to complete visual obscuration. Many patients will comment that the area of diminished vision is laced with moving scintillomata of vague or definite pattern. These tend to be bright and shimmering, white or coloured, and may be circles, Z-shaped, or fortification-shaped figures. The scintillomata may precede or accompany the obscured vision but not uncommonly appear in the area of blurred vision after it has been present for a few minutes.

Some patients describe an aura related to other parts of the body. These symptoms usually consist of pins and needles or numbness; in some cases, where the paræsthesiæ persist, weakness occurs. The distribution may be to one half of the face, the edge of the tongue, or the arm and leg. These somatic manifestations of what is probably spasm[1] within the distribution of the internal carotid artery circulation are well known and mentioned in almost all the standard textbooks of neurology. However, both Ford[2] and Wilson[3] state that weakness is an unusual accompaniment and believe that the hemiparetic symptoms are almost entirely subjective. Brain[4] in his text mentions that paræsthesiæ and numbness occur next in frequency to visual disturbances. He also states that weakness of the limbs is less common than subjective paræsthesiæ, and that the face and upper limb are more often affected than the leg.

There are examples in the literature of permanent signs of cerebral damage which have appeared at the time of an attack of migraine.[5-8]

From reading the case reports of these patients it seems that there might possibly have been a structural abnormality such as an aneurysm or angioma underlying their attacks of migraine. Most of these cases were described before the days of cerebral angiography and before we were in the

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habit of listening for cerebral bruit. Furthermore, many of these patients had rather atypical attacks of migraine prior to the ictus. It may be significant that most of them felt their headache always on the same side and in the same area. On the other hand, there is no doubt that thrombosis may occur in the course of an attack of migraine in a young person with otherwise normal blood vessels. Such a case has recently been reported by Murphy.[9]

In 1951 Symonds[5] reported the history of a man afflicted with familial hemiplegic migraine. After repeated attacks he gradually developed permanent neurological signs and dementia although an arteriovenous anomaly had been excluded. His attacks, which began with loss of vision, numbness and weakness of one side, were followed by headache, drowsiness and vomiting. When the attack was rightsided, the recovery was usually complete in 48 hours. When it was leftsided, the patient became comatose, and this with the paralysis lasted four to five days but generally disappeared completely. There was a history of similar episodes in the patient's father and grandfather. A carotid angiogram and an air-encephalogram were normal. There were transient electroencephalographic (E.E.G.) changes during the attack and a C.S.F. polymorphonuclear cell count as high as 185 per c.mm. in one episode. Symonds has suggested spasm in the smallest of cerebral vessels as an explanation of this form of migraine.

Whitty[6] in 1953 reported six examples of familial hemiplegic migraine. In four of them the weakness persisted for two or three days. In one patient signs lasted for a few hours, and in another there was some variation, the longest episode of paralysis being six days. One patient was a 52-year-old woman who had had attacks since the age of 15 and was similar to Symonds's patient. In addition to the hemiparesis she would be confused for several hours after the attack. This patient's brother had a similar history, with confusion following the hemiparesis and headache. As Whitty commented in discussing his cases, they seemed to fall into two rather dissimilar groups. In one group the progression was more like that of the usual migraine. During the aura the hemiparesis appeared and was shortly followed by headache, after which the weakness disappeared. The attacks were either right-sided or left-sided, and migraine with a more common aura (visual) would occur at other times in the same patient. The family histories revealed other cases with the same pattern of migraine but not necessarily of the hemiparetic kind.

In the second group the attacks seemed more stereotyped. They often occurred exclusively on the one side and other varieties of migraine were unusual. The aura was more prolonged and persisted or increased after the onset of the headache. The cerebral disturbance was evidently more widespread, as confusion, drowsiness, coma, or bilateral motor signs were noted. The family history was generally striking, with the identical form of attack in each member for two or three generations. It is suggested here that possibly this second group might be better called major hemiplegic migraine while the earlier group, which is referred to in most of the textbooks, might better be termed minor hemiplegic migraine.

The purpose of this paper is to suggest that hemiplegic migraine does occur as a non-familial syndrome, that weakness probably occurs, and that the significance of migraine accompanied by transient hemiparesis is probably the same as that accompanied by visual disturbance. Unfortunately none of the patients in this report were examined during an attack. However, because they have all given such distinctive, stereotyped histories, it is thought that some worthwhile conclusions may be drawn about the nature of migraine in spite of this entirely subjective account.

CASE 1.—A labourer aged 28 reported that since age 22 he had been having headaches. He stated that they were all the same and occurred about six to eight times a year. His first warning of an attack was "blurred vision". His vision would become blurred in a concentric way in both eyes until he was left with a small circle of clear vision in the centre of each field. The surrounding grey areas were filled with shimmering heatwave-like lines which were most prominent in both upper and outer parts of the fields. The visual disturbances lasted about 15 minutes. They would disappear quickly and for the next 15 minutes he would be quite well. Then a sensation of numbness and deadness would appear in the 4th and 5th digits and on the ulnar side of one or other hand. A mild sensation of tingling or pins and needles was also present in the area affected but the predominant sensation was one of "deadness" and stiffness. The hand was weak and clumsy. He thought that this might occur in either hand but never in both hands simultaneously. The paræsthesiæ extended from the ulnar edge of the hand, up the ulnar side of the arm as far as the elbow but never above. After the hand and forearm had been involved for about 20 minutes, he felt the same thing in the lips. It was equal in both lips and progressed from the corner of the mouth to the midline. Then the ala of the nose on the same side and the opening of the nares became numb and tingling. This was followed by the sensation along the edge of the tongue, beginning posteriorly, and at the same time on the upper and lower gums and inside of his cheek. The sensation progressed forward to the tip of the tongue and as far as the central incisors. At this stage he was unable to drink from a glass without spilling liquid down his chin and if eating noticed that he "lost" food in his cheek on the anæsthetic side. The entire episode of paræsthesiæ and weakness lasted from one-half to one hour and faded away gradually, clearing first in the fingers. The legs and feet remained normal. The headache then began and was felt in the opposite temple. The pain extended above and behind the ear and radiated towards the occiput. It was a pounding, dull ache made worse by movement of the head and bright light, and lasted two to three hours during which time he was drowsy and wished to sleep. He would vomit about half an hour after the onset of the pain with no change

in the pain. The day after an attack, rapid movements of the head would reproduce the pain for a few seconds. When the attack involved the right side of the face and arm his speech was affected and he was unable to talk, although he could understand what was being said to him. On further questioning he thought that he had never had an episode of headache without the usual aura. On the other hand he could recall as a child losing his vision and experiencing some weakness of one or other arm, and vomiting. He thought that he had probably not had headaches in these episodes. There was no other event in his past history to suggest an aura without headache.

The family history revealed an identical type of episode in his sister. His father also had periodic headaches with vomiting but no paræsthesiæ or blindness.

While under the care of a neurosurgeon he was given diphenylhydantoin sodium and took this regularly, one and one-half grains three times a day for about a year. He reported that while on this he had no episodes of numbness or weakness or blurring of vision, but his headaches occurred with the same regularity and were of the same severity. An air-encephalogram and electroencephalogram were normal.

There are three points in this history to consider. The random way in which the attacks involved either the right or left side probably precludes a structural vascular lesion. Either he was having bilateral occipital cortical vasospasm with extension forward into one or other (but not both) Rolandic areas, or else the hemiparetic symptoms represented the only cortical vasospasm and the lesion causing the visual distress was located much more anteriorly, i.e. in the retinæ. Also the apparent effect of the diphenylhydantoin sodium on the aura but not the pain is interesting. If the symptoms of the migrainous aura are due to vasoconstriction, perhaps one of the actions of diphenylhydantoin sodium is antispasmodic. At any rate, while he was on diphenylhydantoin sodium his attacks were not preceded by an aura. There may be a clue here to the efficacy of diphenylhydantoin sodium as an anti-convulsant, as Penfield[10] has suggested that the cause of the epileptic discharge is "continuing or recurrent ganglionic ischæmia".

CASE 2.—This patient was a 16-year-old, right-handed aircraftman, 2nd class. He said that since age 12 his right or left side would periodically become paralyzed. These episodes occurred four or six times a year and incapacitated him for about one day. His most recent attack, which was typical, occurred while he was sitting in class at a lecture. He noticed first a tingling in one foot. This was a pins-and-needles sensation and covered the entire dorsum and ventral surface of the foot as high as the ankle. The paræsthesiæ ascended the leg and gradually faded out somewhere around the knee. He said that after this his leg became "numb and wooden". He was unable to move the leg quickly and it would not support him if he stood up.

Twenty minutes after the start of the attack he was unable to write or pick up a small object, and was sure that there had been no preceding paræsthesiæ in the hand. Regardless of the side affected, he was unable to speak shortly after the upper limb became involved and could not understand what was being said to him. He states that he felt drowsy and "half-drugged" and although he could hear sounds that people were making they meant nothing to him. About 45 to 60 minutes after the onset the feeling and power began to return to the foot and leg. Then the same side of his face would feel numb and dead and his tongue would be thick and heavy. This would be followed by an ipsilateral hemianopsia with bright, flashing lights in the area of blurred vision. He was not sure whether the blurred vision was from one or both eyes. Occasionally the visual disturbance preceded the numbness of the foot. Generally, however, the progression of symptoms was foot and leg, face and vision. By the time the paræsthesiæ and weakness had completely subsided he would be so drowsy that he had to sleep regardless of what he was doing or where he was. The sleep would last for 30-45 minutes and he would wake up refreshed and alert, but with a severe, pounding headache, usually on the opposite side from the paræsthesiæ and usually occipital. This was accompanied by nausea but no vomiting and passed off after four hours. The headache was made worse by movement and improved by lying down in the dark. His mother had had recurrent headaches with vomiting for as long as he could remember. She had neither visual nor somatic symptoms preceding the headache. Physical examination, E.E.G. and bilateral carotid angiography as well as radiographs of the skull were normal. An oxygen encephalogram revealed equivocal, symmetrical, ventricular dilatation.

This patient presents several unusual features. In this group of patients and in the literature it is rare for the initial somatic symptoms to appear in the leg. He is also different in that he had no migraine without the elaborate aura described above. Most patients either have no aura or a simple visual aura with only an occasional episode preceded by hemiparesis. The final point is the dysphasia. Regardless of whether his aura was right-sided or left-sided, he gave a history of some disorder of speech and comprehension at about the time his face and hand became numb. It is thought that either this is due to bilaterality of his speech "centres" or else the spasm was always present to a greater or lesser degree over both hemispheres. The drowsiness seems to be a characteristic of migraine with an extensive aura and is present in most patients reported here.

CASE 3.—A 15-year-old schoolboy had been complaining of attacks for the previous two years. These were all the same but were either right-sided or left-sided and occurred three or four times a year. The attack started with blurred vision. This might be from the right or left eye and involved the entire field of the affected eye, the other eye remaining normal. The blurring was a smooth, grey, diminution of vision with no moving lights or waving lines. It lasted 10 minutes and disappeared slowly. After this, all his ipsilateral fingers tingled as well as the palm and dorsum of the hand, and these paræsthesiæ changed into a sensation

of woodenness in about 15 minutes. While this was present the side of the nose became numb and stiff, and as the hand improved the lips and corner of the mouth became involved. These symptoms extended from the corner of the mouth to the midline. After the lips, the back of the tongue became awkward and stiff. When these symptoms occurred on the right side, he had difficulty in speaking and used inappropriate words and phrases. He had no trouble understanding. The entire episode of paræsthesiæ and numbness lasted 15-45 minutes and was followed by a symptom-free interval of half an hour. He then developed a bilateral headache, present only on rapid head movements and felt above and behind the eyes and to a lesser degree in the temporal regions. If he kept his head still and did not walk rapidly or jump, he had no headache. He had no vomiting, nausea or other symptoms. His mother also had a history of recurrent headaches with vomiting. Examination of his nervous system was normal, as were skull radiographs and an electroencephalogram. No further investigations were done.

This probably represents the mildest form of hemiplegic migraine. As is not infrequent with children, the aura forms the greater part of the syndrome. This boy made no mention of his headache until asked directly. In his mind the paræsthesiæ and dysphasia were the important parts of the disorder and the headache was of no concern as long as he kept his head still.

CASE 4.—This 20-year-old housewife had been complaining of attacks for the previous two years. At the time of the first attack she was five months pregnant and noted that one afternoon she became drowsy and confused. She went to bed and noticed that the toes and foot on the right side started to tingle, this sensation ascending the leg as high as the knee. The paræsthesiæ lasted for a few minutes and were followed by complete loss of all feeling. She attempted to get out of bed and found that the leg would not hold her weight and she fell. Ten minutes later she experienced the same pins and needles in the thumb and index finger of the right hand and these paræsthesiæ ascended the arm as high as the elbow. These feelings were then replaced with a sensation of deadness of the hand and she was unable to move the fingers quickly. While the arm was involved the condition of the leg remained unchanged. Following this she experienced the same paræsthesiæ in the corner of her mouth, upper and lower lip as far as the midline and the lower part of the right face. This was followed by the same sensation in the tongue, starting on the right side in front and extending slowly backwards. She noted that she could not speak and was unable to think of what she wanted to say. She was able to understand her husband speaking to her, but only uttered inarticulate sounds according to him. These symptoms lasted about one hour and when she was seen later by her family doctor the paræsthesiæ and the numbness had completely subsided.

Immediately after the dysæsthesiæ she became aware of an increasing, pounding, right frontal headache. This reached its maximum in about an hour and she observed that minor head movements or coughing aggravated the pain. There was no nausea or vomiting and she was sufficiently drowsy to pass into a deep sleep. When she awoke from this two hours later the headache was less and she was clear-headed and free of somatic symptoms. There were no visual symptoms in this attack.

Six months later she experienced a similar period of confusion and this was followed by generalized blurring of vision and flashing lights in her entire fields of vision. This was accompanied by pins and needles in the face and tongue on the left side and shortly thereafter the same sensations in the left upper limb. Her speech and leg were not affected. The paræsthesiæ lasted about 10 to 15 minutes. The same kind of pain followed except that in this attack the pain was bilateral, frontal, and parietal as opposed to right frontal. There was no drowsiness in this episode.

About seven or eight months later (when again three months pregnant) the third attack occurred, and again this was ushered in with an episode of confusion and disorientation. At the onset she was cooking and discovered after the attack that she had ruined the preparation of a familiar and simple recipe. Following the confusion or possibly accompanying it, there was generalized blurred vision with bright circles of light in her entire fields. This lasted for 10 minutes and was followed by pins and needles and numbness in the right hand and face. The leg, tongue and lips remained normal. She could not remember whether her speech was abnormal. There was no headache and the entire period of confusion, visual, and somatic symptoms lasted about one hour. She felt generally tired for the remainder of the day but was quite emphatic that she had no headache either at rest or on sudden head movements.

She had an older sister and younger brother with periodic, one-sided headaches and vomiting. She also related that as a child of about 12 she had had several episodes of "sunstroke" every summer in which she would have pins and needles on one or other side of her body followed by headache, vomiting and drowsiness.

On examination there were no abnormal physical signs and no cranial bruit was heard. Her electroencephalogram and oxygen encephalogram were normal.

This patient presents several unusual features. Although migraine is generally less frequent during pregnancy, this young woman had two of the three episodes that she has experienced as an adult while pregnant. She is also unusual in that she becomes confused early in the attack rather than at the stage of drowsiness when the aura is at a maximum.

Her visual loss was similar to that in case 1. Her entire visual field became blurred but the remainder of the aura was strictly unilateral. Considerable variation is noted in the three attacks described. In one the paræsthesiæ were followed by definite weakness while in another the symptoms were of short duration and were entirely subjective. In the last attack the aura was followed by fatigue but no headache.

CASE 5.—Mrs. M.G., an intelligent 25-year-old housewife, experienced her first attack of visual distress

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and headache at age 20. Her second attack occurred at age 22 when she was three months pregnant. This episode was followed by regular weekly or twice weekly headaches for the remaining six months of that pregnancy.

Her current attacks of headache had begun two weeks before being seen and she had experienced six to eight episodes in the preceding 14 days. Her attacks were generally all the same but varied from side to side. The most recent one had wakened her at the usual time of getting up, with blurred vision and scotomata in the entire field of the right eye. Vision from the left eye was normal. The scintillomata were star-shaped and circular, a bright shiny colour, and travelled slowly from above downwards through her blurred field. Her visual symptoms lasted about 20 minutes and she was then free of symptoms for half an hour.

The headache then began and was felt in the forehead, radiating back to the vertex, and was equally bad in both temples. The pain was throbbing and increased in severity over two to three hours. It lasted three to 24 hours, was associated with vomiting, aggravated by sudden movement of the head, coughing or straining, and diminished by lying down in the dark.

The first time the somatic symptoms appeared they followed the visual 10 to 15 minutes after the latter had subsided. They had occurred only in the past five or six attacks. She felt pins and needles and stiffness of all the fingers and the hand on the right side. These sensations slowly ascended the arm to near the elbow and were next felt in the upper and lower lip and edge of the tongue.

From here the sensations spread over her face and lower gum up to and including the ear.

In the right-sided attack the speech was affected before her hand and face and was probably a defect of comprehension as well as expression. The somatic disturbance lasted about one hour and cleared gradually in the same order as its onset. It was accompanied by the headache. In the left-sided attack her face, tongue and lower gum were involved but the ear and speech were not. The preceding visual disturbance was related to the entire field of one or other eye. The headache was much the same as with the right-sided aura and similar to her previous headaches, preceded only by a visual aura.

Physical examination was normal, radiograph of the skull and electroencephalogram were negative and no cranial bruit was heard.

This patient provides a significant clue to the location(s) of the vasospasm responsible for migranous aura. She was quite sure that the blurred vision and scintillomata were referred to one or other eye only. This almost certainly locates the lesion in front of the optic chiasma. On the other hand, from the progression of her somatic symptoms, the paracentral cortex must be involved as well. While in Case 4 an entirely cortical location might explain the bilateral and total visual loss and somatic symptoms, there seems little doubt that this patient was having consecutive bouts of vasospasm in two widely separated areas.

The numbness of her ear in the course of her right-sided aura is curious. She was quite sure that the facial paræsthesiæ were first felt in the upper and lower lips and spread slowly back up the cheek and line of the jaw (at the same time extending back along the edge of the tongue) to include the ear. Dr. Wilder Penfield[11] has kindly commented on this patient's history. He reports that, unlike the anterior part of the face which is cortically *represented** below the hand, the ear and neck have a representation higher up in the central area. The representation of the ear is evidently between the trunk and upper arm. In no other patient with facial paræsthesiæ was there any recollection of sensory symptoms referable to the ear.

One might imply that in this patient the threshold of the cortical area representing the ear is about the same as the anterior face and lips.

CASE 6.—Mrs. A.L., a 25-year-old housewife, when first seen was seven months pregnant and having three kinds of "attacks". The first one had been experienced two years previously, at which time she was also about five months pregnant. They had recurred every three weeks for the remainder of that pregnancy. Recently she had been having an attack every few days. The most common attack would start with scotomata seen out of the left side of both eyes. These consisted of blurred vision with some shimmering lines, as though she were looking at heat waves in the bright sunlight. The visual disturbance lasted half an hour and was followed by generalized headache with nausea and vomiting and some drowsiness. The headache would last two or three hours and would pass off gradually.

In addition to these episodes she was having the visual trouble followed by numbness of her hand and face. The numbness would begin in the fingers and thumb and ascend the arm to the elbow. The sensation was one of pins and needles followed by stiffness. When the arm was completely numb, the same symptoms would begin in the ipsilateral side of the face. They would start in the lips, upper and lower gum, edge of the tongue and cheek. When the episode occurred on the right side, she was unable to speak and unable to think of what she wanted to say. She could understand everything that was said to her. After the face had been numb for 15 to 20 minutes, the hand would begin to improve and by the time it was normal the face would start to recover. Then her head would begin to ache in both temporal and both occipital regions. The headache was the same as in the other attacks and lasted the same length of time. There was also the usual nausea and vomiting. Most of these attacks with somatic and visual aura were right-sided. In none of the left-sided attacks did she have any headache. The visual disturbance and numbness were the same, however.

She remembered that one attack of migraine had started with the usual disturbance on the right side of her vision and was followed by paræsthesiæ in the right face and arm and the usual speech disturbance. In this attack throbbing occipital and temporal headache occurred. After the pain had been present for about three-quarters of an hour she experienced visual loss and numbness on the opposite side of the body in

*The italics are mine.

the usual order. As far as she could remember, this was her only attack in which the scotomata and numbness had been bilateral.

Perhaps this patient presents the least difficulty in diagnosis. In addition to conventional attacks of migraine she has other episodes similar in every respect except for the additional somatic parts of the aura. Although it is more common for migrainous patients to have episodes of headache with no aura than the reverse, this patient describes scotomata and paræsthesiæ not followed by headache.

Undoubtedly the hemiplegic aura followed by slight or no headache presents the most difficult and dangerous diagnostic problem. This is particularly so if the previous history is inadequate or consists of only attacks of the more usual kind.

DISCUSSION

Any theory which attempts to explain a varied and sometimes ambiguous syndrome such as migraine must be able to account for all the components of the disorder.

It has been suggested that the aura and the pain have quite separate mechanisms and locations. The aura is probably due to constriction of blood vessels within the internal carotid system while the pain is due to distension and leakage from vessels largely in the external carotid system.

A majority of migrainous subjects evidently have vasospasm only in the area of the calcarine cortex or possibly in the retinæ. Hence the common early aura consists of scotoma with or without some form of scintillomata. It is suggested that the somatic symptoms described in these patients represent an extension of this vasospasm into the Rolandic area. Depending on the duration of the vasospasm the quality of the aura changes. In the occipital area the visual loss may be slight and momentary. Where the vasospasm persists the visual loss may be complete and last several hours. Similarly in the more anterior location vasospasm of short duration produces the relatively common fleeting pins and needles. When the spasm persists, the symptoms become more severe and last longer.

The diagnosis of migraine seems more hazardous when the aura is somatic as well as visual. This is even more so when the aura is only somatic. Nevertheless, the diagnosis of migraine is usually made on the strength of the history of the patient and his family plus the negative physical examination. If the diagnosis can be made with reasonable confidence when the aura is mainly visual distress, the fact that the location of the process (i.e. vasospasm) has changed does not mean that the nature of the lesion has changed. The problem of diagnosis is simplified when the somatic symptoms vary from one side of the body to the other, or occur consecutively on the two sides in the same attack, as described in the last case. The possibility of migraine being a symptom of a local vascular abnormality is reduced in these patients. Nevertheless the presence of a tumour or vascular abnormality in any of these patients is always considered in the differential diagnosis.

According to MacKenzie,[12] the absence of a cranial bruit is reliable negative evidence against a cerebral angioma. On the other hand, the symptoms of intracranial arteriovenous angiomatous malformations do not commonly include migraine. Olivecrona[13] in a group of 42 patients with cerebral angioma was able to elicit a history of migraine from only one patient.

Of MacKenzie's 50 patients with cerebral angiomas 12 presented with headache. In seven of these the headache suggested migraine. The striking thing about these was that in each attack of migraine the aura was on the same side. In contrast to this observation, Whitty[6] has reported one patient who for 35 years had attacks of migraine with an aura of hemiparesis and visual failure always on the same side. Carotid arteriography had excluded a cerebral angioma. The other characteristic as noted by MacKenzie was the constant location of the pain in each attack. He has observed that in ordinary migraine, the headache although perhaps predominantly one-sided will generally involve the other side in some attacks and in most attacks will be felt to some degree on both sides. In his patients, if the headache was not generalized, it was invariably one-sided and on the side of the angioma.

There is a difference of opinion about the frequency of a cranial bruit in patients with cerebral angiomas. Tonnis[14] was able to hear a bruit in only 18% of 22 cases, Northfield[15] in 30% of nine cases, Potter[16] in 22% of 58 cases and Olivecrona in 19% of 42 cases. On the other hand, of MacKenzie's 50 patients only five failed to have a bruit or a history of intracerebral hæmorrhage. Evidently an angioma that has bled is much less likely to give rise to a murmur.

Fourteen of MacKenzie's patients had had hæmorrhages and in only one of these was a bruit heard.

Finally it may be said that the evolution and natural history of cerebral angioma is entirely different from migraine, whatever the form of the migraine. Almost all patients with cerebral angioma progress from a stage of intermittent headache to focal epilepsy, to fixed cerebral signs, to cerebral hæmorrhage, although not necessarily in this order.

If a patient with cerebral angioma presents with migraine only, it is doubtful if the quality of the headache alone, or the headache plus the distribution of the visual and somatic aura, will ever enable one to differentiate between essential migraine and cerebral angioma. All the characteristics of the headaches as described by MacKenzie's 50 patients with angiomas have been reported in other patients who have clearly not had cerebral angiomas.

It is doubtful if one can ever on clinical grounds determine which migrainous patients have an intracerebral aneurysm. The most suspicious features, short of the all too obvious hæmorrhage, seem to be the same site for the pain in each attack and fixed signs of cerebral deficit.

SUMMARY

Six cases of minor hemiplegic migraine are presented. The symptoms and nature of the syndrome are compared with the symptomatology of cerebral angiomas.

When the vasospasm responsible for the aura of migraine extends from the visual pathways to the Rolandic cortex, there is no clinical indication that the disease is other than migraine.

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RÉSUMÉ

L'hémicranie classique comporte l'aura, la douleur et les symptômes associés. Parmi ceux-ci la nausée, les vomissements, la diplopie, la photophobie, la sialorrhée, l'assoupissement ou le sommeil incoercible sont bien connus. L'aura peut assumer la forme d'une aire de picotements, d'engourdissement et de faiblesse musculaire. Cette faiblesse peut s'étendre aux membres. Même a-t-on déjà rapporté des reliquats permanents d'atteinte cérébrale (thrombose, entre autres) à la suite d'attaques de migraine. Ces formes de migraines dites accompagnées entraînent une paralysie transitoire d'une durée de deux à trois jours. On a proposé le terme de *migraine hémiplégique majeure* pour décrire l'affection retracée chez deux ou trois générations successives, par opposition à la forme non familiale ou *mineure* dont l'auteur rapporte six cas dans le présent article. L'aura et la douleur seraient produites par des mécanismes séparés et intéresseraient des régions différentes, L'aura viendrait de la constriction des vaisseaux du système de la carotide interne, alors que la douleur découlerait de la dilatation et de la perméabilité des vaisseaux appartenant surtout au système carotidien externe. Que le spasme vasculaire incriminé dans l'aura s'étende des structures de la perception visuelle à la zone rolandique ne forme pas pour autant une indication clinique que la maladie soit autre que la migraine.

TULARÆMIA IN BRITISH COLUMBIA

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THE RECENT OCCURRENCE of a case of tularæmia originating near Kamloops has aroused our interest in this disease and stimulated us to record the cases known to have occurred in our province.

HISTORICAL[1]

McCoy described a "plague-like disease in rodents" in California in 1911. The causative organism was isolated by McCoy and Chapin in 1912 and given the name of *Pasteurella tularensis* because it had first been isolated in Tulare County, California. The disease is found in many different rodents including rabbits, hares, ground squirrels, and water rats. Animals other than rodents vary in their susceptibility, and domestic animals, except domestic rabbits and sheep, are largely resistant. Outbreaks of epizootic proportions have been reported in range sheep in the western United States and Alberta.[2] Transmission from animal to animal is chiefly through the medium of bloodsucking insects, particularly ticks.

The disease in man was given the name of tularæmia by Francis in 1919. Man may contract the disease by several different routes. The most common mode of infection is for the organism to enter an abrasion on the hand of a person engaged in handling or skinning an infected animal. Pelts of infected animals may harbour the organism for considerable periods. The infection may be transmitted to man by the bite of an infected insect or through crushing an infected insect on the skin. The infection easily enters the conjunctiva, to which it is presumably carried by contaminated fingers. It is well established that *P. tularensis* is able to penetrate the intact skin when rubbed on it. The infection may be transmitted by the ingestion of the insufficiently cooked flesh of an infected animal, and instances of the transmission of the organism in drinking water have been recorded.

Cases of tularæmia in humans have been reported from all 48 states of the United States and from Canada, Japan, Russia, Norway, Sweden and other countries. California and the northwest United States have reported the greatest number of cases, and many have occurred in Russia from the pelting of water rats. In the years from 1922 up to the introduction of streptomycin in 1945, the United States Public Health Service reported 19,208 cases, and 1432 deaths were attributed to the disease. This would give a case mortality of about 7.4% before streptomycin became available as a specific treatment.

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TULARÆMIA IN CANADA

The first case of tularæmia diagnosed in Canada was reported by McNabb[3] from Timmins, Ontario, in 1930. We have made no attempt to ascertain the number of cases which have occurred in Canada. Enquiries made by the Dominion Entomological Laboratory, Kamloops, in 1939 revealed that the number of cases reported from 1932 to 1939 included: Nova Scotia two, Quebec two, Ontario six, Alberta 16 and British Columbia two; none were reported in Prince Edward Island, New Brunswick, Manitoba and Saskatchewan.

TULARÆMIA IN BRITISH COLUMBIA

Including a case which occurred near Kamloops in 1956, we have been able to find two British Columbia cases which have been reported in the literature and four cases which have not been reported previously, making a total of six known cases in British Columbia from 1934 to 1956. We feel sure that many additional cases have occurred. Two other highly suspicious cases have come to our notice but the diagnoses were not definitely confirmed and they are not included in our compilation.

It should be noted that Ootmar[4] reported a case in 1931 under the title of "B.C. Tularæmia Case Report". This was an account of a retrospective serological diagnosis of a case in a man who had been bitten by a deerfly in August 1929. Further follow-up by the Dominion Entomological Laboratory definitely established that this case did not originate in British Columbia, as the patient suffered his bite in Banff, Alberta.

TABLE I.—CASES OF TULARÆMIA IN BRITISH COLUMBIA, 1934 - 1956

Date	*Sex*	*Age*	*Location*	*Mode of infection*	*Agglutination titre*	*Outcome*
1934	Female	12	Cherry Creek	Scratch from a cat.	1:320	Recovered
1935	Male	18	Williams Lake	Tick bite.	——	Recovered
1944	Male	45	Williams Lake	Skinning a coyote.	1:640	Died
1953	Male	56	70 Mile House	Skinning hare.	1:1280	Recovered
1954	Male	43	Kamloops	Laboratory infection (conjunctival).	1:200	Recovered
1956	Male	29	Louis Creek	Skinning a rabbit.	1:640	Recovered

REPORT OF A RECENT CASE

T.C., a 29-year-old Italian-born caterpillar tractor operator, presented himself on October 13, 1956, with chills and fever and pain in the right elbow and right axilla of about 48 hours' duration. He had a small healing abrasion on the right middle finger.

He reported that one week before (October 6) he suffered a slight abrasion on his right middle finger. The same day at Louis Creek, 35 miles north of Kamloops, he noticed a rabbit on the edge of the field where he was working. The rabbit was not very active and stayed in approximately the same location for several hours. He shot it with a .22 rifle, took it home, skinned it and ate some of the meat after it had been boiled and roasted.

His symptoms continued and increased over a two-week period in spite of satisfactory healing of the abrasion and in spite of treatment for a week with Sulfadine and for another week with Achromycin. He was admitted to the Royal Inland Hospital, Kamloops, on October 27 with greatly enlarged and very tender right epitrochlear and axillary glands. The finger abrasion was covered by a dry scab and there was no surrounding inflammation. His temperature was 104.6° F. There were no other relevant physical findings, but he was flushed and agitated and complained of considerable pain over the enlarged right epitrochlear gland, which was firm and tender and showed extensive surrounding induration.

The laboratory findings were: hæmoglobin level 83.4% (12.1 g. %), red cell count 4,320,000 with normal red cell morphology. White cell count 12,300 with neutrophils 27%, band cells 18%, lymphocytes 34%, monocytes 13%, metamyelocytes 3%, myelocytes 1%, promyelocytes 4%. Sedimentation rate (modified Westergren) 10 mm. in one hour. Urine negative. A heavy growth of *Staphylococcus aureus* was obtained from the abrasion on the finger.

He was given large doses of penicillin on admission. Blood agglutination against *P. tularensis* was reported positive in a dilution of 1:160 on November 1, 26 days after infection. Treatment was then changed to 0.5 g. streptomycin twice daily. Four days later the agglutination titre had risen to 1:640. His temperature became normal on November 6 (tenth hospital day) and remained normal. Enlargement and tenderness of glands gradually subsided. There have been no relapses to date and recovery appears to have been complete.

The incubation period was four days and the duration of the illness 31 days.

PREVIOUSLY REPORTED CASES

October 1934.—A case originating at Cherry Creek, 12 miles west of Kamloops, was reported by Mr. T. K. Moilliet.[5] The patient was a 12-year-old girl, infected by a scratch from a cat which had been fed on a dead rabbit. She was under the care of the late Dr. R. W. Irving of Kamloops and made a good recovery after prolonged illness. The agglutination titre was 1:320.

September 1944.—Dr. K. K. Pump[6] reported a case occurring at Williams Lake in a 45-year-old man, who became ill after skinning a coyote. As coyotes are resistant to tularæmia, the presumption is that the coyote had been feeding on infected rabbits. The case showed an agglutination titre of 1:640 and ended fatally on the 20th day of illness.

CASES NOT PREVIOUSLY REPORTED

August 1935.—An 18-year-old boy was bitten by a tick and developed the symptoms of tularæmia. He

was treated by Dr. C. E. McRae of Williams Lake and Dr. H. A. DesBrisay of Vancouver and recovered. Though no record of the agglutination titre is available, the case would appear to have been well established.[7]

September 1953.—A 56-year-old man contracted the infection through a prick on his finger while skinning a hare at 70 Mile House. He was treated by Dr. L. C. Capling[8] of Haney, B.C. After an initial illness of six days he recovered on treatment with aureomycin but suffered three relapses in the succeeding three months, finally making a good recovery. The agglutination titre reached 1:1280.

May 1954.—A 43-year-old laboratory worker from the Kamloops Branch of the Laboratory of Hygiene was treated by Dr. J. H. Harland.[9] The patient himself suggested the possibility of tularæmia as he had been handling cultures of the organism. He had an inflammation of the conjunctiva but no lymphadenopathy. The agglutination titre was 1:200 and he recovered promptly under treatment with Achromycin and streptomycin.

October 1956.—This case in a 29-year-old man who contracted his infection at Louis Creek is reported in detail above.

DISCUSSION

Tularæmia is not a common disease in British Columbia, but it is one which should always be kept in mind. Humphreys and Campbell[10] report that *P. tularensis* has been recovered from ticks collected from widely scattered areas of southern British Columbia. Both the common wood tick (*Dermacentor andersoni* Stiles) and the rabbit tick (*Hæmophysalis leporis-palustra* Packard) have been found to harbour the organism. A reservoir of infection is present in British Columbia, and all persons should be aware of this and should exercise great care in the handling of wild rabbits, especially rabbits which show signs of sickness or lack of normal agility.

The incubation period of tularæmia in man is from one to 10 days with an average of about 3½ days. The onset is sudden with headache, chills, body pains, vomiting and fever. The primary lesion on the skin or conjunctiva usually proceeds to ulceration. The regional lymph glands are usually enlarged and inflamed and may form abscesses or ulcerate. The fever, when not treated by streptomycin, usually persists for three or four weeks and convalescence is slow.

Diagnosis is usually confirmed by agglutination tests but it is also often possible to recover the organism from the skin lesion or the glands either directly or after passage through a guinea-pig.

Streptomycin administration is a specific treatment and usually leads to prompt recovery.

SUMMARY

A recent case of tularæmia occurring in British Columbia is reported. A further five cases known to have occurred in this province are reviewed and are summarized in the accompanying table (Table I).

We would like to express our appreciation of the assistance extended to us by Mr. J. D. Gregson and his staff at the Veterinary Entomology Section, Science Service, Entomology Division, Canada Department of Agriculture, which is referred to above as the Dominion Entomological Laboratory, Kamloops.

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RÉSUMÉ

Les voies d'infection humaine de la tularémie sont soit une solution de continuité des téguments, soit la piqûre d'un arthropode infectieux, ou même l'écrasement et le frottement de cet insecte sur une peau intacte, le contact de la conjonctive par des doigts infectés, ou l'ingestion d'eau ou de nourriture contaminées par des rongeurs malades. Avant l'ère de la streptomycine la mortalité dans cette affection était de 7.4%. Le premier cas rapporté au Canada fut découvert en 1930.

Les faits cliniques d'un opérateur de niveleuse qui avait mangé de la viande de lièvre malade sont donnés dans le texte. En plus d'une fièvre de 104.6° F. (40.3° C.), cet homme présentait une adénopathie douloureuse épitrochléenne et axillaire droite qui faillit masquer le diagnostic à cause d'une éraflure suppurée du médius droit de laquelle on isola du staphylocoque blanc. Le séro-diagnostic pour *Pasteurella tularensis*, cependant, montra un taux d'agglutinines de 1:160, qui quatre jours plus tard atteignit 1:640. L'instauration du traitement à la streptomycine (0.5 g. deux fois par jour) marqua le tournant de la maladie, dont l'incubation avait été de quatre jours et la durée totale de 31 jours. Cinq autres cas sont présentés de façon succincte. Même si la tularémie ne s'observe que rarement au Canada, il faut se rappeler qu'il en existe un réservoir en Colombie canadienne.

EFFECT OF X-RAY THERAPY ON GASTRIC ACIDITY AND 17-HYDROXYCORTICOID AND UROPEPSIN EXCRETION

Rider and his colleagues (*Ann. Int. Med.*, 47: 651, 1957) report that in 14 patients, x-irradiation of the stomach for the treatment of peptic ulcer resulted in a clinical remission in 12 and in a reduction in gastric acidity in all. Uropepsin excretion was consistently and significantly increased during or immediately after x-ray therapy and subsequently fell approximately to control levels. This rise was much greater in patients in whom the secretion of hydrochloric acid was markedly reduced. An occasional patient showed a marked persistent reduction. The rise in uropepsin excretion after treatment suggests that radiation causes an alteration in the function or permeability of the chief cells, leading to a change in the direction of diffusion of pepsinogen in favour of the blood stream. The 17-hydroxycorticoid excretion rose during and after x-irradiation and subsequently fell towards control levels, although a few patients maintained a persistent elevation. This effect may be part of a general stress phenomenon. An early marked rise in uropepsin, followed by a marked fall in gastric acidity, may enable one to predict early which patients will respond best to x-ray therapy.

THE LEPROSY PROBLEM IN CANADA WITH REPORT OF A CASE*

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LEPROSY (Hansen's disease) is uncommon in Canada, but may be seen more often as a result of the increased numbers of emigrants from countries where leprosy is endemic. The long incubation period (a few weeks to 20 or more years) may mean that the disease is not apparent during the initial medical examination. The patient may continue living a normal life in Canada for several years before the diagnosis is made. Therefore some knowledge of the modern concept of leprosy is important to all who treat new Canadians.

CLASSIFICATION AND DESCRIPTION

The two main types of leprosy in the classification adopted by the Leprosy Congress in 1948 and the World Health Organization in 1952 are the lepromatous and the tuberculoid. The chief difference between them lies in the resistance of the host to the existence and dissemination of the bacilli. In the lepromatous or anergic type there is a negative lepromin test, and a minimal resistance to the bacilli. This is the more dangerous type. It is definitely infectious and the prognosis is poor without efficient treatment. Acid-fast bacilli are readily found in the skin lesions and in the scrapings from the nasal septum. On the other hand, the tuberculoid type is hyperergic and shows a positive lepromin test. There is great resistance of the host to the bacilli and their multiplication, and the prognosis is fairly good. It is extremely difficult to find any acid-fast bacilli in pathological sections or in the nasal scrapings. Skin biopsies may show epithelioid tubercles like those in sarcoid. There is a strong tendency to regression in the absence of repeated lepra reactions. This type is closed or non-infectious. The lesions of leprosy may occur in either type of the disease and are found in the skin, mucous membrane of the upper respiratory tract, peripheral nerves, reticulo-endothelial system, eyes, and bone marrow.

HISTORY OF LEPROSY IN CANADA (FROM 1815)

At the present time there are no foci of the disease in Canada. Isolated cases develop in the various provinces from time to time, but the disease has been acquired in other countries where leprosy is endemic. However, this was not always the case. According to an article by C. P. Brown,[1] leprosy occurred in native-born Canadians during the 19th century and the early part of this century. One focus developed in Cape Breton Island, N.S., and was investigated by Fletcher in 1881, and reported on by Rogers and Muir. A total of 11 cases occurred; patients were isolated in their homes and the disease did not spread. Another focus developed in Saskatchewan in 1909. A Russian woman died of leprosy, and 17-18 years later both her son and her daughter developed definite cases of leprosy and were treated at the leprosarium at Tracadie, N.B. The mother and daughter were born in Russia, but the son was born in Canada. The largest focus (or foci) of the disease developed in New Brunswick and was probably introduced by the early settlers from France. The paternal grandfather of the first recorded case came from St. Malo in Normandy, France, at that time a leprous district. The first recorded case was in 1815 and the hospital records from 1815 till 1952 show 289 cases originating in New Brunswick, four in Nova Scotia, and one in Saskatchewan (this should probably have been two). Twenty-nine other patients were admitted to Tracadie during this period, but all of these cases acquired the disease outside Canada. Cases were reported in British Columbia from 1892 (when the first cases were definitely diagnosed) until 1952, according to the records of the special hospital at Bentinck Island, B.C. There were 51 cases in all. The cases originated as follows: British Columbia 46, Ontario one, Saskatchewan one, Alberta one, and Quebec one; and the racial origins were given as: Chinese 47, Russian two, and Canadian two.

Before the passage of the Leprosy Act in 1906, the care of lepers was a provincial responsibility. A hospital (or lazaretto) was first established in 1844 by the government of New Brunswick and 20 patients were admitted during the first year. In 1868, the nursing sisters of a religious order known as Les Religieuses de l'Hôtel-Dieu de Saint Joseph de Tracadie took over the care of the hospital and the patients, and the Order has been in charge ever since. The Dominion government pays for the treatment of the leprosy patients on a *per diem* basis.

Isolation of lepers in British Columbia on Darcy Island began in 1892. Later, buildings were erected at William Head Quarantine station near Victoria, B.C. In 1923-24, a lazaretto consisting of separate cottages for the patients and a small hospital was erected on Bentinck Island, near the William Head Quarantine Station. During the period 1916-1952, 26 patients were admitted to Bentinck Island. Of these, 12 died, 11 were discharged with the disease arrested, and three were retained in hospital. At Tracadie, during the same period, there were 21 admissions. Of this number, seven died, nine were released with the disease arrested, and five were retained in hospital.

According to a personal communication received from Dr. W. H. Frost,[2] acting chief of the Quarantine, Immigration Medical and Sick Mariners Services, Department of National Health and Welfare, the present policy is to treat the patients in one of the special hospitals until they are non-infectious.

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*From the Dermatology Clinic, Toronto General Hospital, and the Department of Medicine, University of Toronto. Read at the 11th Annual Meeting of the Canadian Dermatological Association, London, Ont., May 17, 1957.

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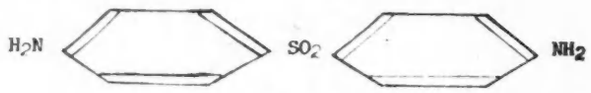
Then they are permitted to return home to continue their treatment under the care of their own physician and the supervision of the local medical officer of health. The drugs are supplied free to such patients.

MODERN TREATMENT OF LEPROSY

The modern treatment of leprosy is with the sulfone group of drugs.[3, 4] This group differs from the sulfonamides in that the sulfonyl radical ($R\text{-}SO_2\text{-}R$) is combined with two carbon atoms, whereas in the sulfonamides this radical is combined with one carbon atom and one amino group ($R\text{-}SO_2\text{-}NH_2$). The basic sulfone is 4-4-diaminodiphenylsulfone or DDS in short form.



Parent Sulfone

There is no clear indication that any sulfone compound is more effective than another in the therapy of leprosy. Several are in common usage, including Promin. The initial intravenous dose is usually 1 gram daily, six days a week, increasing to a maximum of 5 g. after four to six weeks with a rest period of one week in three. Diasone is well tolerated by mouth. The initial dose is 0.3 g. daily; this is increased gradually over four to six weeks to a maximum of 1 g. daily in divided doses. Sulphetrone is given initially in a dosage of 0.5 g. per os daily. This is increased gradually to 4-5 g. It can also be given intramuscularly in an oily vehicle twice weekly in maximum doses of 3 g. Promacetin is given orally, commencing with 0.5 g. and increasing to 4 g. daily. With all the sulfones a period of rest is advisable several times a year. At the National Leprosarium, Carville, La., a period of two weeks is allowed every three months. Patients whose disease is apparently arrested should continue, under medical supervision, taking small daily doses of a sulfone for life because the disease can recur if treatment is discontinued. In reports from Carville, the greatest improvement is seen in lesions of the skin and mucosa. Disturbances in sensation, atrophies, and contractures are not affected. Eye lesions show little improvement. The sulfone drugs are neither curative nor bactericidal, but long-continued therapy seems to assist natural processes of recovery by suppressing multiplication of the bacilli. The disease apparently becomes arrested in a considerable proportion of cases. At Carville, only a small percentage of the patients show bacterial improvement after one year of sulfone therapy. However, such improvement has been the rule after long-continued therapy. A decrease in the number of bacteria is usually noticed first in the nasal mucosa.

CASE REPORT

The following is the report of a case of a 31-year-old housewife who presented herself at the dermatology clinic, out-patients' department, Toronto General Hospital, in September 1956, for advice and treatment of acne rosacea, a complaint from which she had suffered for some time; she had received treatment privately from several doctors in the city. During the history and examination several interesting things were discovered. She had lived six years in Toronto, but before that time she had lived in Sao Paulo, Brazil, where there are considerable numbers of lepers. She had numerous brownish macules and nodules on her arms, buttocks and legs. A burn scar was observed on the medial side of her right forearm. She mentioned that it was nothing—she often hurt herself there and she never seemed to feel it. A careful examination with pin prick, cotton wool, and hot and cold solutions soon demonstrated anæsthesia over the medial side of the right forearm and also over a smaller area on the inner side of the left forearm. There was thickening of both ulnar nerves. A biopsy of a nodule was taken from each arm and sent for pathological examination and report. A scraping from the nasal septum was positive for acid-fast bacilli. Her spleen was enlarged and she was pregnant.

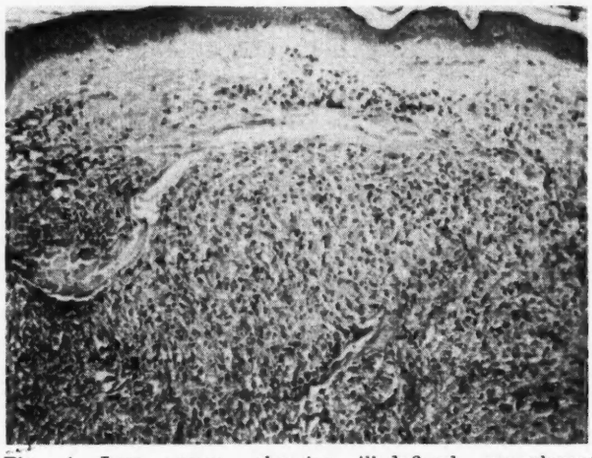


Fig. 1.—Low power, showing ill-defined granulomata throughout the dermis.

Pathological report by Dr. William Anderson, Department of Surgical Pathology, Toronto General Hospital:

"The biopsy included a portion of intact epidermis, together with the entire thickness of the underlying dermis.

"Extending throughout the dermis were a number of ill-defined granulomata (Fig. 1), the component

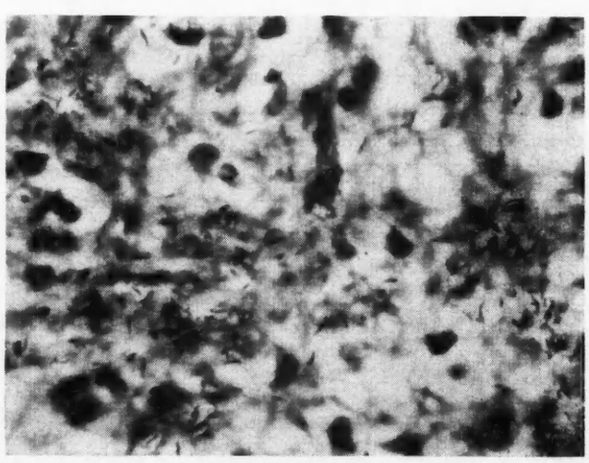


Fig. 2.—High power, showing large numbers of acid-fast bacilli (*M. lepræ*) in the dermis.

cells of which include a significant number of the large, coarsely vacuolated histiocytes ('lepra' or 'Virchow' cells) which are characteristic of the disease.

"Numbers of non-vacuolated histiocytes, plasma cells and lymphocytes formed the remainder of any given granuloma.

"Acid-fast stains demonstrated the presence of large numbers of bacilli (Fig. 2), although there were none of the dense masses of organisms which have been referred to as the 'globi' of Meissner.

"*Diagnosis:* Hansen's disease (leprosy)."

Discussion of Case

This patient was suffering from the *acute lepromatous type of leprosy,* the active infectious type which can be rapidly fatal without modern therapy, as outlined in a preceding paragraph. She had lesions in the skin, mucous membranes of the nose, and presumably in the peripheral nerves and the reticulo-endothelial system (enlarged spleen). She admitted seeing lepers in Brazil, but stated emphatically that she had never been in contact with them, nor had the disease developed in any of her relatives. It was difficult to determine how long she had had the disease. She had a serious illness at five years of age and nearly died. The diagnosis was very vague and was thought to be fruit poisoning. From that time onwards she had never been really well. She was always considered a sickly child. The dermatologists considered that her rosacea was not related to her leprosy. Further, it was decided that her pregnancy should not be interrupted but that her baby should be taken away from her immediately after birth, so that the child would not become infected from the mother. She was transferred to Tracadie and treatment with the sulfones commenced.

Conclusion

In recent years much productive research on the treatment of leprosy has been done in the United States, South America, Africa, the Philippines, and India. Much of this research has been stimulated by American financial aid, notably the Leonard Wood Memorial research in the Philippines, South Africa, and South America. However, there is still much to find out about this disease. The causal organism, *Mycobacterium lepræ,* still cannot be cultured in the laboratory or grown in animals. Its relationship to another acid-fast bacillus, *Mycobacterium tuberculosis,* is still not clear.The incubation period of leprosy is still not definite; it ranges from a few weeks to 20 or more years. Symptoms usually become evident before puberty: adults are relatively resistant to the disease. Bacilli may be found on scraping the nasal mucous membrane, but it should be noted that acid-fast bacilli other than *M. lepræ* may occur there. The disease is still thought to be transferred to others by prolonged and intimate contact, but the exact route by which the bacilli enter the body is not known. It may be through minute abrasions or wounds in the skin.

It is felt that educational measures directed towards early recognition of this disease should be encouraged. More and more people are emigrating from leprous areas to Canada.[5] Some of them may have become infected in childhood, and because of the long incubation period of the disease the symptoms may not be apparent until they have lived in Canada for several years.

Summary

The leprosy problem in Canada is not a serious one, but the odd case occurs from time to time in emigrants from countries where the disease is endemic.

The two main types are lepromatous and tuberculoid. The lepromatous is the more dangerous type. It is definitely infectious and the prognosis is poor without modern treatment.

At present there is no focus of leprosy in Canada. However, this was not always the case. A review of the history of the disease in this country from 1815 onwards shows that the largest focus of leprosy developed in New Brunswick. There were 289 cases.

Before the passage of the Leprosy Act in 1906, the care of lepers was a provincial responsibility. Special hospitals were established at Tracadie, N.B., in 1844 and at Darcy Island, B.C., in 1892, and finally at Bentinck Island, B.C., in 1923.

The modern treatment of leprosy is with the sulfone group of drugs. Several sulfone compounds are in common usage. These drugs are neither curative nor bactericidal, but long-continued therapy seems to assist natural processes of recovery by suppressing multiplication of the bacilli. The disease becomes arrested in a considerable proportion of cases.

A case of acute lepromatous leprosy is reported. It illustrates the main points of this article.

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Résumé

La lèpre ne soulève pas de problème sérieux au Canada, bien que nous en voyons un cas de temps à autre parmi les émigrants de pays où cette maladie est endémique. Les deux principaux types sont la lèpre maligne ou lépromateuse et la lèpre bénigne ou tuberculoïde. Celle-là est indubitablement infectieuse et son prognostic est sombre si l'on n'a recours au traitement moderne. Il n'existe à l'heure actuelle aucun foyer de lèpre au Canada bien qu'il n'en ait pas toujours été ainsi. En effet un rappel des données historiques de la maladie dans notre pays depuis 1815 montre qu'il y eut jadis au Nouveau Brunswick un foyer actif de lèpre. On en compta 289 cas. Avant que ne soit adopté le décret de la Lèpre en 1906, le soin des lépreux relevait de l'autorité provinciale. On construisit des hôpitaux spéciaux à Tracadie, Nouveau Brunswick en 1844, à Darcy Island, Colombie canadienne en 1892, et enfin à Bentinck Island, dans la même province, en 1923. Le traitement moderne de la lèpre est fondé sur un groupe de médicaments appelés sulfones. On les emploie sous plusieurs formes. Ces composés ne sont ni curatifs ni bactéricides, mais un traitement prolongé semble aider aux facultés naturelles de défense dans la suppression de la multiplication des bacilles. La maladie atteint un stage stationnaire dans un grand nombre de cas. Les auteurs rapportent un cas de lèpre lépromateuse qu'ils ont eu la bonne fortune de diagnostiquer à l'hôpital général de Toronto, et qui illustre bien les faits saillants de cet article.

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ADMISSIONS OF GERIATRIC CASES TO A MENTAL HOSPITAL*

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WITH THE ADVANCE of medical science an increasing number of people reach old age. This creates many problems at various levels of our social structure. Some assume that this problem will solve itself, but it is difficult to reconcile this with the statistics of actuaries who tell us that the number of aged people will grow at an accelerated rate during the next few decades. By 1980 in the United States there will be 26 million people aged 65 or over. At present, more than one-third of all patients admitted to the mental hospitals are over 65 years of age. These older people are being encouraged by many sorts of publicity to expect a special geriatric program on a national scale. Many of them have no money to pay for the social and medical care they need. We do not seem to know how to adjust our society to meet this increasing proportion of aging people. As one would expect, social organizations and medical and welfare services are taking the brunt of this change in the structure of our society.

It is generally agreed that, in about one-third of those elderly people who need medical care, the problem is largely psychiatric, but to this we should add the medical and surgical disorders which present no special problem of treatment on general lines, provided certain requirements inherent in the management of old-age patients are fulfilled.

It is this group of aged patients that I propose to discuss in this article. These patients often suffer from a grievous physical illness or minor but potentially dangerous disturbance and show a mixture of physical and mental symptoms, the significance of which is difficult to evaluate.

These patients usually have some degree of social maladjustment which may be solely responsible for their applying for medical assistance. The arrival of a new baby or the wedding of a child or even a grandchild may make it necessary for an old member of the family to leave home. Sometimes it is the death of a spouse which makes it difficult to care for the survivor who may be feeble or crippled.

Medical men have often been called on to deal with the manifold problems of old age—medical, individual, familial and sociological. Not surprisingly, no aspect has been dealt with satisfactorily. Discouraged, many doctors have tended to minimize the importance of the problem or to explain it away by such generalities as the inevitable consequence of old age, involutionary changes and the all-sanctifying arteriosclerosis.

Occasional attention paid to the aged patient, especially if unprofitable, has been looked upon as an act of charity. Death is often received by the relatives as a "blessing" and riddance of an unwanted burden, no matter how well this feeling is disguised. This attitude tends to inspire the general practitioner with a sense of hopelessness and expediency in disposal of the patient. He is usually presented with a case which, besides treatment, requires adequate management and nursing. The patient may be helpless, chronically ill, mildly demented and irascible. He requires more patience, attention and nursing than a younger subject and gives infinitely less gratification to the staff in the form of a feeling of achievement. He occupies a hospital bed indefinitely and frequently is unable to pay. He may require an extensive operation with very uncertain results.

If the patient is admitted to a general hospital for treatment, when treatment ends the difficult question of final disposal arises. Neither the existing facilities nor the training and selection of nurses are designed for such cases. Modern hospitals work to schedule on assembly-line principles. Old patients are cumbersome material and the product is embarrassing. Two avenues are left open to the general practitioner. Either his patient is placed in a home for the aged, or he is sent to a mental hospital.

The homes for the aged were originated by charity, which still plays an important part in their organization and maintenance. They set their own high standard for prospective residents. The candidate should be well behaved, of a pleasant and unobtrusive personality, able to pay for maintenance, and capable of looking after his daily needs. Only a mild degree of dementia is tolerated. Most homes insist that the patient should be in good health. It seems doubtful whether the homes for the aged can always help the practitioner in disposing of his aged patient. These institutions were meant to solve the social and not the medical aspect of the problem, and few of them have any provision for sick or incapacitated residents. The accumulation of many aged persons abruptly uprooted from their former residence creates problems of mental hygiene which remain mainly unrecognized. In the absence of any hospitals for the chronically ill and physically incapacitated, the mental hospitals remain the only hospitals to which a medical practitioner can send a variety of his patients who do not fit into any other existing institutions. This action is made easier by the definition of a "mentally ill person" who, according to the Mental Hygiene Act, is "a person who is suffering from such a disorder of mind that he requires care, supervision and control for his own protection or welfare, or for the protection of others". It is obvious that this definition may leave much room for subjective interpretation of the patient's requirements.

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It should then be clearly realized that in many cases the accommodation of a patient in the mental hospital becomes a matter of expediency rather than necessity. This view seems so well ingrained that in many cases practitioners do not even attempt to give any adequate reasons for committing a patient to the mental hospital. A random survey of 500 medical certificates in this hospital revealed that up to 15% of them fall into this category. The reason for removal of a patient from the community can seldom be deduced from the brief generalities in a committal form. Grave physical illnesses which are in many cases responsible for psychiatric symptoms are missed or underestimated.

I propose to discuss a few pertinent cases which illustrate the problem as seen in this hospital. Every case is chosen to represent a group of several similar admissions.

CASE 1.—A 70-year-old white man, mildly disorientated, with memory and judgment moderately impaired, deficient grasp and insight, and a tendency to irascibility, had been able to function on a satisfactory level for 10 years in an old people's home. Two months before admission to this hospital he became irritable, aggressive and hostile. One day he fainted. A diagnosis of cerebral arteriosclerosis was made and the patient committed to this hospital. He was thin, undernourished, pale, apprehensive and depressed, but co-operative. Short observation revealed vomiting and preprandial pain relieved by food. The barium study revealed a large gastric ulcer. He recovered uneventfully and is now a pleasant, friendly, active, well-behaved patient. An attempt was made to rehabilitate him back to the old people's home, but he was refused on the grounds of an "unbearable personality" which they believe will never change.

CASE 2.—A veterinary surgeon, aged 68, was admitted with congestive heart failure and considerable respiratory distress. The reason for committal was given as addiction to morphine taken to relieve dyspnœa. The patient was acutely aware of his rejection by his doctor and the family. He would rather die than suffer the disgrace of being a patient in a mental hospital. On admission he was very apprehensive, demanding constant attention, inseparable from his oxygen mask, noisy and abusive. Aspiration of a massive pleural transudate was followed by a quick improvement. He was seen walking and enjoying other moderate activity, was pleasant, friendly and co-operative. He showed no evidence of any mental illness. His anxiety was a reaction to the circulatory disorder and its management. He had no desire or craving for morphine after his condition improved.

CASE 3.—This case is selected to represent a large group of aged patients whose restlessness, confusion and disorientation were the manifestations of a delirium associated with acute organic states such as: (a) uræmia due to urinary retention or nephrosclerosis; (b) upper lobe pneumonia; (c) cerebrovascular accident; (d) diabetic acidosis; (e) hypertensive encephalopathy.

A 79-year-old white man had a cerebrovascular accident 17 months previously which resulted in a left-sided moderate hemiplegia. He is said to have become more difficult and confused, but he was able to write and edit a small book of poetry since the accident, which showed some talent and none of the alleged confusion and deterioration. Five days before the admission he disrobed himself, became noisy and restless, got out of bed, and refused food, and sedatives were of no avail. On admission he was extremely restless, confused, disorientated and delirious.

Physical examination revealed the presence of an acute-on-chronic urinary obstruction due to hypertrophy of prostate. The state of delirium subsided gradually with frequent drainage of the distended bladder and the blood urea returned to normal. He had a prostatectomy later and reacted to it with marked elevation of blood urea and delirium. It was felt that the trauma of surgery had upset the precarious kidney balance. It would be interesting to observe how often a similar condition exists in other aged patients with precarious kidney function. He was finally accommodated in an old people's home in his community and made a satisfactory adjustment.

CASE 4.—A 71-year-old white man was admitted to this hospital under two medical certificates, which stated: "Schizoid behaviour, untidy, senile, not able to look after himself." The patient lived with his aged brother in an old dilapidated house in a small town. Last year it became increasingly difficult for them to secure and prepare adequate food, especially as the patient was partly disabled by a chronic arthritis. One day the patient's brother suffered a slight cerebrovascular accident. They were found by neighbours, half starved and neglected, and were moved to a local general hospital. The patient was quite rational and intelligent and could not understand why his doctor intended to send him to a mental hospital, but he was informed that in fact he was being sent to a special wing of the mental hospital which functions as an old people's home. He believed he had come here for treatment of his arthritis and expected to be discharged home after the treatment. He was well orientated in all spheres and had a good comprehension of his situation. His memory and judgment were only very slightly impaired. No delusions or hallucinations were present.

The patient suffered from chronic rheumatoid arthritis. The lungs showed extensive fibrosis due to an old tuberculous process, inactive at present. The patient was very poorly nourished and anæmic, and his serum proteins were decreased. An attempt was made to accommodate the patient in an old people's home, but he was refused on the grounds that he was partially disabled and might require additional nursing care on relapse of his arthritis.

DISCUSSION

It is probably impracticable to advance any definite suggestions for dealing with this vast and complex subject at present. Much thought, effort and planning will be required to develop an urgently required geriatric program on a national scale, but there are certain points which call for immediate consideration:

1. It may be helpful for practitioners to remember that there are certain commonly occurring conditions in geriatric patients (see Table I) which

TABLE I.—DIAGNOSTIC SPECIFICATION OF ALL PATIENTS OVER 60 YEARS OF AGE ADMITTED TO THE SASKATCHEWAN HOSPITAL, WEYBURN, FROM MAY 1955 TO DECEMBER 1956. TOTAL ADMISSIONS, 281.

	Admitted	*Died*	*Average time between admission and death (in days)*	*Remain in hospital*	*Discharged from hospital*
A. Clinical conditions without psychosis					
(1) Physical conditions causing delirium:					
(i) Uræmia due to hypertrophy of prostate, cystocele, pyelonephritis, nephrosclerosis, etc.	10	6	30	1	3
(ii) Cerebrovascular accidents	25	13	74	8	4
(iii) Congestive heart failure	10	7	26	1	2
(iv) Diabetic acidosis	9	2	1.5	4	3
(v) Pneumonia	1				1
(2) Patients incapacitated physically and requiring tedious nursing	14	10	56	4	
(3) Terminal care for patients suffering from neoplastic diseases	5	5	50		
(4) Listless and confused patients in chronic semi-starvation	13	7	2	4	2
(5) Physical conditions causing mild re-active neuroses	33			3	30
(6) Mild confusion and amnesia of the aged	63	10		28	25
Total	183	60		53	70
B. Psychoses such as: —Senile psychosis —Psychosis with arteriosclerosis —Affective disorders	98				

are easily missed on cursory examination. In tracing the causes of failure it is usually obvious that the fault lies more with the physician or surgeon than with peculiarities which a case may present. These conditions are often responsible for delirium which is easily misdiagnosed as psychosis. Mistakes are especially important, as most of these patients could be left in their communities after short treatment of the underlying disease in a local hospital; this would avoid unnecessary overcrowding of the psychiatric hospital and branding them as "mental", which makes their rehabilitation into the community especially difficult.

Before giving a verdict, it is mandatory to exclude the presence of any commonly occurring disorder in old age, such as:

(i) Cerebrovascular accident. There are frequent cases of mild "strokes" with fleeting paralysis and confusion which may recover spontaneously and do not call for institutional treatment. Severe cases are obvious medical emergencies and nothing is gained by sending them to a psychiatric hospital because of accompanying confusion. Cases with late effects can be managed at home or in the old people's homes.

(ii) Prostatism with urinary obstruction and uræmia. One wonders why so many cases with this disorder are sent to the mental hospital. It is not necessarily due to a diagnostic inaccuracy. Recently a patient arrived from a country hospital with an acute urinary obstruction due to prostatism and this was accurately recorded in the committing papers, with a remark that the result of blood urea determination was to follow. This was 70 mg. %. Apart from a mild delirium apparently due to uræmia, he showed no other mental symptoms, was co-operative and easy to manage and improved considerably on catheterization. He was then transferred to a general hospital for surgery, and his behaviour was exemplary. His trip to the mental hospital remains a puzzle. It was possible that the young general practitioner could not afford to be at variance with the nursing staff who found the patient "difficult", but even then a urological ward appeared more reasonable than the psychiatric hospital.

(iii) Chronic starvation and dehydration associated with vitamin deficiency. It is true that this condition may occur in the mentally ill, but many cases are admitted to a mental hospital in which a slight or moderate confusion may be considered as a result of insufficient food intake, both quantitatively and qualitatively. Old people are notoriously poor and selective eaters and require supervision. To remedy this, an attractive community project might be organized, but little is gained by sending a patient to a mental hospital for the improvement of malnutrition or in a state of an advanced cachexia of which he dies a few days after admission. It is felt that a long trip, often hundreds of miles, to a hospital and the stress of adjusting to unfamiliar surroundings contribute greatly to the fatal outcome.

(iv) *Constipation.*—The act of defæcation is a complicated process which can be affected by: (a) Disturbance in the central nervous system causing general atony and apathy. (b) Poor correlation of muscular action, as in parkinsonism. (c) Weakness of intestinal and abdominal musculature due to senile hypoplasia. (d) Psychological difficulty in communicating with apparently intolerant or unsympathetic persons, when help with the act is needed. (e) Decreased mental alertness to respond to the call to defæcation. If this call is neglected, the rectum relaxes and the desire passes off. The pelvic colon and rectum gradually become distended and evacuation becomes difficult, especially as the fæces inspissate. Fragments of fæces are passed, often involuntarily, but the bulk is left behind, producing symptoms of intestinal obstruc-

tion or other symptoms such as loss of power of attention, depression, restlessness, headache, insomnia and irritability which add to the general apathetic state. The fragmentary defæcation is erroneously described as incontinence. Fæcal impaction may become so pronounced that the masses press on the bladder, producing frequency, dribbling or in rare cases urinary retention. When intestinal obstruction occurs the difficulties in diagnosis are much increased by notoriously inadequate history and anamnesis in the aged. I have seen many laparotomies performed only to find fæcal stasis as the cause of obstruction. In advanced cases, cleansing of the colon is none too simple. It may call for repeated manual removal of fæces from the rectum, followed by repeated colonic washout while the symptoms of obstruction are relieved by Miller-Abbott tube and intravenous fluid therapy. I have used this procedure successfully in many patients in this hospital.

(v) Other common conditions of old age such as delirium or stupor due to abuse of sedatives, diabetic acidosis or heart failure need no special emphasis here and are easily excluded if a practitioner is sufficiently aware of their frequent occurrence.

2. Besides delirium, many milder disorders of affect and behaviour are known to occur in the course of medical and surgical ailments. Logically, these patients should continue to be treated in medical or surgical wards of a general hospital, but unfortunately this view does not seem to be generally accepted, as judged by the number of cases of this category sent to psychiatric hospitals. Lack of adequate accommodation in general wards may be a cause easily corrected if the problem is fully realized. What seems to be a major impediment to the management of such patients outside the psychiatric hospitals is a very inadequate understanding and appreciation by the nursing staff of the mental and physical aspects of disease. This is not surprising when one reads the timely articles in the medical press about the state of nursing education. Hale[1] in *Modern Hospitals* describes it as wasteful, inefficient, costly and above all as discouraging good nursing. Zerny and Osmond[2] deplore "high pressure [nursing] schools cramming their pupils with an ever widening selection of so-called basic-sciences" with inadequate emphasis on bedside nursing which is considered by some of the educators as "something outmoded and almost shameful".

In the light of this attitude of their leaders, it is difficult to see how a nurse can fully retain the basic qualities of good nursing as defined by Allwood Paredes in World Health Organization discussions: "In her relation to the patient the nurse cannot forget, without violating the noble tradition of her profession, that the mind and the suffering body form an indissoluble whole; neither must she lose sight of the fact that there is no substitute for the qualities of sympathy, kindness and love for the relief of the patient's anxiety and pain."

It is interesting to observe how frequently an average nurse becomes horrified by even mild symptoms of emotional disturbance of a patient, and how prone she is to label the patient as "mental" and in need of treatment in a mental institution. Probably because of inadequate training, it seldom occurs to her that the disturbance can be interpreted in terms of insufficient attention paid to the patient's psychological needs. The patient soon learns that he can no longer satisfy his need to relate to her, feels rejected and unwanted and reacts with depression or hostility in a form conditioned by his cultural pattern and often diminished intellectual capacity. It may be better for the patient to be removed from such an environment, but it is very doubtful whether he should go to an already crowded mental hospital, as is frequently the case. The following presentation may be illustrative.

CASE 5.—An 82-year-old Chinese man was committed here from a general hospital on the grounds that he was violent, abusive, used obscene language, and was confused and incontinent. On admission he was suffering from aortic incompetence associated with latent syphilis and hemiparesis with aphasia due to a recent cerebrovascular accident. He was quiet, friendly and cooperative. There was no delirium or cloudiness of consciousness. He had some speech difficulties due to aphasia and poor English. His grasp of the situation was incomplete. He was mildly disorientated and his memory was impaired, but he could find his way around and could relate himself fairly well to the environment. His main difficulty at that time was incontinence. He was acutely aware of rejection by the nursing staff in the general hospital because of this disability. He complained that he was forced to go to the toilet every 10 minutes to prevent soiling of the bed. It was possible that he reacted to it with irascibility and restlessness. He was obviously suffering from organic illnesses which required treatment in a general hospital, and his mild alleged mental disorder was a side-effect of his main disability and inadequate nursing. The incontinence was due to fæcal impaction and subsided readily on cleansing of the bowel. The hemiparesis improved after treatment of syphilis was instituted. His behaviour is exemplary, although he remained partially disorientated and speaks with difficulty. He will be accommodated in an old people's home on termination of the treatment.

3. It is easily forgotten that in practice the population of a mental hospital is composed of several heterogeneous groups, of which only one constitutes psychiatric patients. The second largest group are physically incurable patients, such as those afflicted by chronic neurological conditions, chronic crippling arthritis, advanced emphysema and fibrosis of lungs, neoplastic diseases, developmental deformities and others. These patients are usually incorrectly included in the statistics as psychiatric cases, although they have few or no psychiatric symptoms and are in hospital solely

to relieve relatives of tedious nursing needed for incontinence and helplessness, or because they have had to vacate a general hospital bed for acute cases, or have no interested relatives. They are usually middle-aged or elderly people who are resigned to their fate and may present only a slight behaviour difficulty. The magnitude of the problem is such that certain psychiatric institutions have acquired the name of hospitals for mental and neurological diseases. Needless to say, a modern hospital oriented towards active treatment of the mentally ill would be in a much better position to accomplish its task if its energy and limited facilities were not distracted by the necessity of caring for this category of patients.

In the light of the present trend to build smaller specialized psychiatric hospitals rather than the existing large institutions for patients with miscellaneous disorders, it seems not unreasonable to suggest that a separate unit should be established to house physically crippled or incurable patients who are not mentally ill. The practice of dumping of these cases in mental hospitals can be regarded as a disservice to the community, as it conceals the need for inquiry into such problems as incontinence, chronic intractable constipation, rehabilitation of patients with paralysis, arthritis and so forth.

4. A large group of aged patients are admitted to this Psychiatric Hospital in a state of semi-starvation. It may be interesting to inquire into the causes of undernourishment. In a young and healthy subject, deficient diet makes the deprived person increasingly hungry and drives him on to get food by all available means. In advanced starvation, interest in food may be lost. In the aged the process of undernourishment probably begins with gradual loss of desire for food due to involution of brain and of endocrine glands, and the onset of forgetfulness, limitation of the sphere of interest and of psychomotor retardation make them less alert to the importance of adequate food intake. Some live a hermit life which makes the securing and preparation of meals more difficult and tiresome. Even if patients are fortunate enough to live with the family, the slow course of deterioration may make any changes in nutrition imperceptible or considered "natural". When admitted to hospital, their fate depends on the degree of malnutrition. In advanced cases the patients exhibit general weakness, confusion, apathy, lethargy, unsteadiness, œdema and difficulty in swallowing and digestion. They die soon after admission. In less pronounced starvation "normal living and super-normal eating" may succeed in restoring their physical condition to a pre-existing level.[3] This is commonly associated with improvement of their mental state.

There is little doubt that patients in this category are a public liability and call for preventive and curative measures in provincial institutions. What is usually forgotten is that a mental hospital should primarily concentrate on active psychiatric treatment, and may not be sufficiently equipped to provide full therapeutic and laboratory facilities for the efficient management of this category of patient.

5. There appears to exist a great deal of misunderstanding as to evaluation of the mental state of geriatric patients before their commitment to a mental hospital. It seems logical that this evaluation should be based on the degree of possible mental aberration as well as on its nature. Few would disagree that many persons over 70 show a gradual decline of intellectual faculties which is usually more obvious in those who in younger years were unable or unwilling to devote sufficient time and energy to maintaining a sustained stimulation and training of their brain. With time they develop a certain degree of mental marasmus, the nature, causation and mechanism of which await further scientific elucidation. These patients are usually egocentric, and show some degree of disorientation due to lack of interest in the environment and mild impairment of memory and judgment. They usually behave well and need little supervision. When assigned to "institutional care", they deteriorate rapidly. It is obvious that these patients need occupation and cultivation of their hobbies in lively and sympathetic surroundings and that these facilities are hardly accessible for them in a mental hospital whose effort and limited resources are primarily directed to the management of psychiatric cases.

On the other hand, the patients with dementia who constitute a serious behaviour problem, with affective disorders and psychoses, whether senile or arteriosclerotic, can greatly profit from psychiatric management and relieve the community from annoyance and potential danger.

6. This presentation is based on admissions during the last 20 months. It should not be forgotten that similar cases have accumulated from previous years and could not be discharged because of lack of suitable nursing homes or too strict a requirement of old people's homes as to health and behaviour of the prospective residents. Many of the patients have no relatives at all; the families of the others are either unable or unwilling to care for them. Many relatives inquire about private nursing homes for which they are willing to pay, but no such institutions exist in this and neighbouring provinces.

The number of these improperly placed patients is estimated in this hospital as 200, and is constantly growing.

SUMMARY

There seems to be no clear conception of how to adjust our society to meet the problem of the increasing proportion of aging people. Many of them are in need of medical help.

This problem calls for solution at various levels of our social structure such as individual, group, national and governmental level.

At present, medical and welfare services take the brunt of the situation. For lack of anything better, many elderly people who require medical or surgical treatment, or prolonged nursing care, are sent to the mental hospital on the grounds that they may be delirious or mildly confused, irascible or alienated from the environment by improper management. Another group in this category consists of patients who are crippled, incurable and requiring terminal care for neoplastic disease or for advanced cachexia, and who show only mild or no mental aberration but may be poor or have no interested relative. Two-thirds of admissions belong to this category.

The need for a comprehensive geriatric program is stressed. It is felt that unnecessary crowding of the mental hospitals with these cases may be avoided if certain common conditions in elderly patients which may cause temporary confusion or delirium are remembered on evaluation of their medical state and treated outside the mental institution. These conditions are: (a) uræmia due to prostatism, nephrosclerosis, pyelonephritis, chronic glomerulonephritis; (b) cerebrovascular accidents; (c) congestive heart failure; (d) diabetic acidosis; (e) septicæmia; (f) chronic constipation; (g) chronic starvation; (h) abuse of sedatives. Incurables and cripples without acute psychotic symptoms should be accommodated in appropriate nursing homes.

The present practice of sending these patients to mental hospitals should be considered as a disservice to the community as it conceals the necessity of a better solution of geriatric problems, invalidates the statistics for mental patients, and consumes the limited resources and energy of the mental hospitals which should be entirely devoted to the treatment of the mentally ill patients.

Homes for the aged should tolerate patients with slight irascibility and mild disorientation.

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RÉSUMÉ

On ne semble avoir aucune solution précise au problème que présente dans notre société la population croissante des gens âgés. Un grand nombre de vieillards requièrent des soins médicaux. Cette solution intéresse plusieurs niveaux sociaux, de l'individu isolé à la nation entière. En ce moment le gros du fardeau repose sur les services publics de médecine et du bien-être. Faute de mieux plusieurs vieillards qui n'ont besoin que de soins médicaux ou chirurgicaux ou qui ne demandent que des soins prolongés de nursing sont dirigés vers des hôpitaux d'aliénés sous prétexte de démence ou de simple confusion, d'irascibilité ou d'aliénation, souvent provoquées par l'abandon dans lequel ils ont été laissés. Un autre groupe du même genre se compose d'invalides et d'incurables atteints de néoplasme ou de cachexie avancés et qui ne montrent peu ou pas d'aberration mentale, mais qui sont dépourvus de ressources et de parenté. Les deux-tiers des admissions aux hôpitaux pour maladies mentales chroniques appartiennent à cette catégorie. L'auteur insiste sur les besoins d'un vaste programme de gérontologie. Il est d'avis que l'on pourrait éviter le surpeuplement des institutions psychiatriques si certains états communément rencontrés dans la vieillesse et pouvant provoquer un état confusionnel ou démentiel temporaire recevaient un traitement médical convenable. Parmi ces affections se trouvent l'urémie causée par une hypertrophie de la prostate ou une des affections rénales chroniques, les accidents cérébraux d'origine vasculaire, la défaillance cardiaque, l'acidose diabétique, la septicémie, la constipation chronique, les états de carence alimentaire et l'abus des somnifères. Les incurables et les invalides sans symptômes psychotiques aigus devraient être traités dans des établissements pour malades chroniques adaptés à leurs besoins. L'habitude courante de caser ces malades dans des institutions psychiatriques doit être considérée comme nuisible à la société puisqu'elle retarde la solution du problème gérontocomique en le masquant, qu'elle fausse les statistiques des maladies mentales et empiète sur les ressources déjà restreintes des établissements psychiatriques qui devraient être consacrés uniquement au traitement des malades mentaux. Les hospices pour vieillards devraient accepter des malades légèrement irascibles ou quelque peu désorientés.

AN IMMUNOLOGICAL STUDY OF THE CANADIAN ESKIMO

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THE FIRST RECORDED INSTANCE of a European meeting an American took place about 1000 years ago when Leif Ericson and his Norsemen crossed the Atlantic and found Eskimos in Greenland and the Northeastern Arctic region. Where these people came from, and when they first arrived, is still the subject of controversy but anthropologists are agreed that they probably reached America in one or more waves from Northern Asia, probably by way of the Behring Sea.

The Eskimos are a migratory people, widely dispersed on the mainland north of the treeline and on the treeless southern Arctic islands. With the exception of about 1000 persons living on the barren lands of Keewatin District, they are predominantly coastal dwellers, obtaining most of their food and clothing from the sea. This is supplemented when possible by the hunting of land animals, particularly caribou, but in most areas this source of supply is uncertain and in any event seasonal.

The tribal structure which is characteristic of many Indian groups is not found amongst the Eskimos. The essential unit is the family although small numbers of families frequently band together in the common interest. Similarly, although an individual may be recognized as leader of these larger groups it is usually because of his acknowledged prowess as a hunter, not because he has been accepted as a permanent chief. The movements of each of these groups follow a predictable pattern throughout the year, and large numbers may gather together at certain times. The most usual occasions for these gatherings are at Christmas, Easter and when the arrival of the annual supply ship is expected. At times, up to 200 or 300 people may collect at one settlement.

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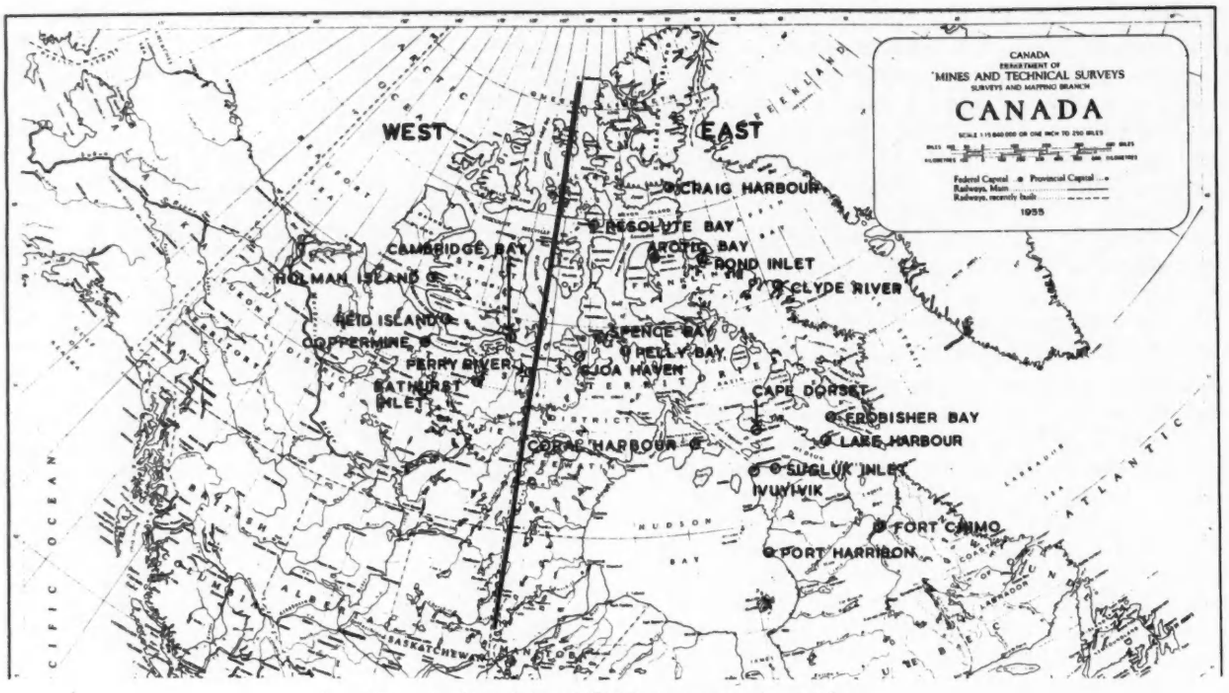

Fig. 1.—Districts of Eskimo groups in study.

The low resistance of isolated groups to communicable disease has been strikingly demonstrated on several of these occasions. There are instances on record of an entire community developing upper respiratory infection within a few days of the arrival of the annual supply ship—this in spite of the fact that up to that point no person, either on board or on shore, had been clinically ill.

There is little to support the premise that there were at any time more than about 10,000 Eskimos in the Canadian Arctic. Only in recent years has it been possible to keep a fairly accurate census but it seems probable that before the white man came upon the scene a balance would have been achieved between population growth and the resources of the land. In more recent years, the communicable diseases brought in by civilization have undoubtedly resulted in serious epidemics and many deaths, but owing to the isolation imposed by vast distances and small groups these did not spread to the same extent as in the Indian populations farther south. The excess of deaths which did occur from these causes was probably counterbalanced, to a certain extent at least, by the help the white man was able to give from time to time in warding off starvation. Tuberculosis may be placed in a special category, for this condition has been particularly prevalent and has accounted for a disproportionately large amount of disability and death. There has, however, been a brightening of this picture over the last few years.

It is important to realize that the present Eskimo population is not culturally homogeneous. Those of the Western Arctic have been in fairly close touch with civilization for a considerable time. The contact they have had with the white man over the past several decades has brought about a sharp change in outlook, and the proportion of this group now living off the land has become considerably reduced. On the other hand, the Eskimos of the Eastern Arctic have been relatively inaccessible in the past and still retain much of their primitive culture. This pattern is slowly changing, particularly in those areas where men from the South have set up permanent or semi-permanent settlements. The advent of Family Allowance and Old Age Pensions, the opportunities for employment at construction sites, the more frequent opportunities of meeting an increasing number of white men and the intensive effort being made to bring the benefits of modern health, educational and welfare practices to the North have all combined to alter the traditional Eskimo way of life. In most areas, a far greater variety of goods are now being bought at the store, and in a few places permanent settlements have become established. Nevertheless, the Eskimos of the Eastern Arctic still remain the most isolated and probably the most clearly defined racial group in North America. For this reason it was thought that an immunological study might be of general interest as well as being of value to the Director of Indian and Northern Health Services in the planning of immunization programs.

PROCEDURE

Blood samples of approximately 10 ml. were collected from cross-sections of Eskimo populations in the Northwest Territories and Northern Quebec. The areas sampled are shown in Figure 1. The majority of blood specimens from the Eastern area were taken in the summer of 1955 by medical teams on the Canadian Government ship, the *C. D. Howe*, and the R.C.M.P. cutter *McBrien*. A number were collected by

TABLE I.—AGE GROUPING OF ESKIMOS IN IMMUNOLOGICAL STUDY

District	Number	Unknown	Age in years: Under 5	5 - 10	11 - 15	16 - 20	21 - 25	26 - 30	Over 30
East Arctic:									
Arctic Bay	27	1	—	—	6	5	4	1	10
Cape Dorset	153	35	2	8	16	22	7	12	51
Clyde Inlet	26	23	—	—	—	—	1	2	—
Coral Harbour	67	9	1	7	8	12	11	8	11
Fort Chimo	128	128	—	—	—	—	—	—	—
Frobisher Bay	66	1	1	8	9	9	11	9	18
Gjoa Haven	12	10	—	—	—	2	—	—	—
Ivuyivik	41	—	—	—	—	5	9	8	19
Lake Harbour	59	6	5	4	2	8	4	8	22
Pelly Bay	11	—	—	—	—	2	1	2	6
Pond Inlet	57	13	—	5	9	5	8	5	12
Port Harrison	113	—	—	5	14	18	18	14	44
Resolute Bay	13	—	—	1	2	2	3	1	4
Spence Bay	16	1	—	—	—	4	1	—	10
Sugluk Inlet	49	18	1	3	6	6	2	5	8
West:									
Bathurst Inlet	42	—	—	—	2	6	3	6	25
Cambridge Bay	92	3	—	—	10	23	9	8	39
Coppermine	42	2	—	—	—	2	2	3	33
Holman Island	10	7	—	—	—	—	—	—	3
Perry River	7	1	—	—	—	1	1	—	4
Total	1031	258	10	41	84	132	95	92	319
		25%	1%	4%	8%	13%	9%	9%	31%

teams from Winnipeg. Those from the West were taken in the winter of 1954-55 by medical teams from Edmonton. The whole blood samples were sent to the Laboratory of Hygiene, usually via air, where they were separated and stored at –20° C. until tested. Before each use the sera were thawed in a 37° C. water bath and were returned to the freezer immediately after use.

The present study, like an earlier one with Indians,[1] was restricted to antibodies related to bacterial infections. Here, too, we tested for the antitoxins of diphtheria and tetanus, and for agglutinins* to *Br. abortus*, *H. pertussis*, *P. tularensis*, *S. typhi* and *S. paratyphi* A, B and C. The methods used for the antibody titrations were mentioned in the previous article. The results of the titrations are shown in Tables II and III. In addition, serological tests† for syphilis were carried out on a number of sera selected at random. V.D.R.L. and Kolmer complement-fixation tests were done on each specimen. Where weakly reactive or reactive specimens were obtained, the tests were repeated and a standard Kahn test was carried out as well.

RESULTS

Blood samples were collected from 1031 Eskimos. The geographical distribution of the groups surveyed is shown in Fig. 1, and their origin, number and ages in Table I. The ages of 773 were known; these ranged from 3 months to 78 years. Less than 5% were under 10, 31% were over 30 and the remainder were fairly evenly distributed between 10 and 30 years of age.

The results of titrations for diphtheria and tetanus antitoxin and *H. pertussis* agglutinins are shown in Table II. Of the 908 sera titrated, 666 (74%) had greater than the Schick-negative level of 0.004 unit of antitoxin per ml. Two hundred and thirty-eight (26%) had measurable tetanus antitoxin, and 234 (23%) had agglutinin titres of 1:8 or greater, against *H. pertussis*.

The agglutinin titres for the various salmonella are presented in Table III, where the numbers with titres of 1:16 or higher are shown. "O" agglutinins of this level were found in 122 (12%) for *S. typhi*, none for *S. paratyphi* A, 76 (7%) for *S. paratyphi* B, and 2 (0.2%) for *S. paratyphi* C. "H" agglutinins were found in 34 (3%), 12 (1%), 22 (2%), and none for *S. typhi*, *S. paratyphi* A, *S. paratyphi* B, and *S. paratyphi* C, respectively.

The agglutinin titres, of 1:8 or higher, for *Br. abortus* and *P. tularensis* are also shown in Table III. Of the 1031 sera titrated, 3 (0.3%) had titres of this level for *Br. abortus*, and 139 (13%) had titres of 1:8 or higher for *P. tularensis*.

Serological tests for syphilis were carried out on 192 sera. No definite positives were found, although 15 of the sera were reactive or weakly reactive to one or two of the three different serological tests performed.

DISCUSSION

Programs for the active immunization of the Canadian Eskimo have not always been easy to carry out. The procedures for their immunization have been more or less standardized and the two immunizing prophylactics most commonly used have been diphtheria and tetanus toxoid combined with pertussis vaccine, and T.A.B.T. (typhoid, paratyphoid A and B vaccines combined with tetanus toxoid). However, because of his nomadic

*The antigens used were provided by the following: *Br. abortus* and *P. tularensis*—Zoonoses Section, Laboratory of Hygiene (Dr. F. A. Humphreys), *H. pertussis*—Eli Lilly and Company (Dr. G. C. Culbertson), "H" antigens for *S. typhi* and *S. paratyphi* A, B and C—Lederle Laboratories (Mr. W. S. Hammond), "O" antigens for *S. typhi*, *S. paratyphi* A, B and C—National Salmonella Centre, Laboratory of Hygiene (Dr. E. T. Bynoe).

†The serological tests were carried out by the Laboratory of Hygiene's Clinical Laboratories under the direction of Dr. R. H. Allen.

TABLE II.—IMMUNITY STATUS, CANADIAN ESKIMOS: DIPHTHERIA, TETANUS, AND PERTUSSIS.

District	Diphtheria No. on test	Diphtheria Antitoxin units <.004	Diphtheria Antitoxin units .004 - 1.0	Diphtheria Antitoxin units >1.0	Tetanus No. on test	Tetanus With .002 unit or more	Pertussis No. on test	Pertussis With agglutinin titres of 1:8 or higher
East:								
Arctic Bay	24	24	0	0	23	4	27	0
Cape Dorset	140	22	30	88	139	0	153	0
Clyde Inlet	25	17	2	6	27	7	26	3
Coral Harbour	28	7	1	20	22	17	67	12
Fort Chimo	125	0	1	124	125	114	127	110
Frobisher Bay	45	7	10	28	37	5	65	2
Gjoa Haven	12	6	5	1	12	2	12	2
Ivuyvik	41	3	17	21	41	0	41	0
Lake Harbour	51	1	12	38	51	0	57	37
Pelly Bay	10	9	1	0	10	1	10	1
Pond Inlet	45	29	10	6	52	1	58	11
Port Harrison	101	30	34	37	108	5	112	9
Resolute Bay	13	4	6	3	13	0	13	2
Spence Bay	16	9	7	0	16	3	16	0
Sugluk Inlet	47	7	35	5	45	0	49	1
West:								
Bathurst Inlet	42	23	17	2	42	21	42	4
Cambridge Bay	90	35	41	14	90	18	91	16
Coppermine	37	3	28	6	37	31	40	17
Holman Island	10	4	2	4	10	8	10	5
Perry River	6	2	2	2	6	1	7	2
Total	908	242 26%	261 29%	405 45%	906	238 26%	1023	234 23%

way of life, the Eskimo has not always been present at immunization time, even though for the most part he wanders within specific though rather large areas. In some of the larger communities such as Cape Dorset and Fort Chimo, the natives are more easily reached and their immunity status as judged by antibody levels appears excellent. In other less accessible settlements such as Arctic Bay, the immunity level against the diseases concerned was practically nil.

According to the best figures at hand, there are approximately 9000 Canadian Eskimos. The 1031 blood sera, therefore, represent a greater than 10% sampling, which allows for a reasonably accurate assessment of immunity status. The over-all value of past immunization procedures can be judged by studying the responses to diphtheria and tetanus toxoids, since these were the most widely used antigens in all immunization campaigns.

TABLE III.—IMMUNITY STATUS, CANADIAN ESKIMOS: ANTIBODIES FOR S. TYPHI, S. PARATYPHI A, B AND C, BR. ABORTUS AND P. TULARENSIS.

District	No. of sera titrated	Number with agglutinin titres of 1:16 and higher: S. typhi O	S. typhi H	S. paratyphi A O	S. paratyphi A H	S. paratyphi B O	S. paratyphi B H	S. paratyphi C O	S. paratyphi C H	Agglutinin titres 1:8+: Br. abortus	P. tularensis
East:											
Arctic Bay	27	0	0	0	0	0	0	0	0	0	0
Cape Dorset	153	5	0	0	0	13	0	0	0	0	0
Clyde Inlet	26	1	0	0	0	0	0	0	0	0	1
Coral Harbour	67	20	1	0	0	8	0	0	0	0	6
Fort Chimo	128	38	29	0	12	21	22	2	0	1	41
Frobisher Bay	66	2	0	0	0	1	0	0	0	0	0
Gjoa Haven	12	0	0	0	0	0	0	0	0	0	6
Ivuyvik	41	0	1	0	0	0	0	0	0	0	8
Lake Harbour	59	0	0	0	0	1	0	0	0	0	3
Pelly Bay	11	6	0	0	0	4	0	0	0	0	0
Pond Inlet	57	6	0	0	0	6	0	0	0	1	2
Port Harrison	113	1	0	0	0	0	0	0	0	0	26
Resolute Bay	13	1	0	0	0	0	0	0	0	0	10
Spence Bay	16	1	0	0	0	1	0	0	0	0	0
Sugluk Inlet	49	1	0	0	0	0	0	0	0	0	21
West:											
Bathurst Inlet	42	7	2	0	0	10	0	0	0	1	6
Cambridge Bay	92	20	1	0	0	8	0	0	0	0	7
Coppermine	42	7	0	0	0	2	0	0	0	0	1
Holman Island	10	3	0	0	0	1	0	0	0	0	0
Perry River	7	3	0	0	0	0	0	0	0	0	1
Totals	1031	122 12%	34 3%	0	12 1%	76 7%	22 2%	2 0.2%	0	3 0.3%	139 13%

Of the 908 sera tested for diphtheria antitoxin, 666 (74%) had antitoxin titres greater than the Schick-negative level, and 405 (45%) had levels over 1.0 unit of antitoxin, indicating a rather high level of immunity. The antitoxin titres in the sera taken at Fort Chimo were extremely high. Here, of the 125 sera titrated, all were found to have immunity levels and all but one had more than 1.0 unit. In Arctic Bay, however, none of the 24 sera tested had measurable diphtheria antitoxin, whereas approximately 50% of the sera from each of the other posts were found to have 0.004 unit or more.

The response to tetanus toxoid is also shown in Table II. Two hundred and thirty-eight (26%) were found to have measurable tetanus antitoxin. The level required for immunity has not yet been determined, but the presence of tetanus antitoxin is necessarily a result of active immunization since this is not a disease where subclinical infections occur. Of the Eskimos in the East, measurable tetanus antitoxin was found in the majority from Fort Chimo and Coral Harbour, but the proportion with titres from the other districts was negligible. Of the Western Eskimos, however, approximately 50% had measurable tetanus antitoxin.

Of the 1023 samples tested for *H. pertussis* agglutinins, 234 (23%) had titres of 1:8 or higher. Of these, 110 (11%) were from the Fort Chimo area. In general, the immunity level—as judged by agglutinin titre—is rather low in the Eskimo. However, it should be pointed out that whooping cough is not of much concern in the population sampled, and this study does not throw any light on the over-all immunity in the most susceptible age groups.

The results of titrations for "O" and "H" agglutinins for S. *typhi* and S. *paratyphi* A, B and C are shown in Table III. Here, as in the previous study with Indians, a titre of 1:16 or greater was arbitrarily selected as having significance. It was considered that titres lower than this would have little meaning since many of the normal enteric (non-pathogenic) organisms have common or closely related antigens. "O" and "H" agglutinin titres of 1:16 or higher were found in 1% or less for both S. *paratyphi* A and C, indicating these diseases were of little concern in any of the Eskimo groups. In general, the presence of "O" antibody is considered as indicative of clinical or subclinical infection, whereas the "H" antibody is considered indicative of active immunization. "O" titres of 1:16 or higher for S. *typhi* were found in 122 (12%) of the sera tested, whereas only 34 (3%) had "H" titres of this level. Seventy-six (7%) had "O" titres of 1:16 or higher for S. *paratyphi* B, and 22 (2%) had "H" titres of this level. In view of the poor sanitation and living conditions of the Eskimo, it is rather surprising that these figures were so low.

Titres of 1:8 or higher were considered as evidence of either clinical or subclinical experience for *Br. abortus* and *P. tularensis*. Active immunization has not been practised against either disease, and they do not have antigens common to the bacteria found in the normal intestinal flora. From these results, it is apparent that *Br. abortus* is not of great concern to any of the populations under study. *P. tularensis* presents a greater problem—at least in some districts. One hundred and thirty-nine (13%) of the sera tested had agglutinins of 1:8 or higher for this disease. In some areas, however (Fort Chimo, Gjoa Haven, Port Harrison, Resolute Bay, Sugluk Inlet and Bathurst Inlet), 40% of the sera or more had agglutinins at this level.

SUMMARY AND CONCLUSIONS

1. Active immunization programs conducted by Indian and Northern Health Services have not always been successful, because of the difficulties in reaching certain groups at times when these programs are under way.

2. Eskimos living near larger settlements were found to be well immunized, but those living in less accessible areas were not as well protected. These latter may be more easily reached in the future because of developments now taking place in the North.

3. The low incidence of "O" and "H" agglutinins to all salmonella tested was rather surprising since sanitation is poor and living conditions are primitive.

4. The results suggest that S. *typhi* and S. *paratyphi* B may present a problem, and immunization against these diseases should be carried out.

5. The low incidence of *Br. abortus* indicates that this disease has been of little or no concern to Eskimo populations.

6. The incidence of agglutinins to *P. tularensis* suggests this condition is endemic in some districts.

7. The results of serological tests for syphilis in 192 randomly selected sera suggest that this disease is not prevalent in the population studied.

The authors would like to express their appreciation to the many Medical Officers in the Indian and Northern Health Services for the collection and documentation of the blood samples on which this study is based.

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RÉSUMÉ

Les services de santé affectés aux populations indiennes et au territoire du nord ont encourus des difficultés dans la réalisation de leurs programmes d'immunisation active quand ils ne purent rejoindre certains groupes indigènes pendant que ces programmes étaient en cours. Les Esquimaux vivant près des établissements importants sont habituellement bien immunisés, mais ceux qui vivent dans des régions moins accessibles ne sont pas aussi bien protégés. Il se pourrait que les développements économiques et industriels qui prennent place dans ces territoires puissent faciliter l'atteinte des individus isolés. Il est étonnant en vue des conditions rudimentaires d'hygiène et du niveau primitif de vie que la fréquence des agglutinines "O" et "H" de toutes les salmonelloses ait été si basse. Il semble cependant que S. *typhi* et S. *paratyphi B* présentent un problème et que la vaccination contre ces maladies doive être poussée. La rareté de *B. abortus* montre que cette affection a peu d'importance dans les populations esquimaux. Par contre, la fréquence des agglutinines de *P. tularensis* indique que cette infection est endémique dans certaines régions. Le séro-diagnostic de la syphilis pratiqué chez 192 sujets choisis au hasard permet de conclure que cette maladie n'est pas très répandue dans les populations étudiées.

Canad. M. A. J.
Jan. 1, 1958, vol. 78

THE IMMUNE STATUS OF POLIOMYELITIS PATIENTS*

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MANY FACTORS predisposing to paralytic poliomyelitis have been reported.[1-3] It is also well known that people vary in their circulating antibody response to infections and to immunizing procedures.[4-6] The present study was undertaken in an attempt to determine whether poor circulating antibody response is related to susceptibility to paralytic poliomyelitis. In a group of patients who had had paralytic poliomyelitis the level of circulating antibodies was measured before, during and after poliomyelitis vaccination and the results compared with those in a group of healthy controls studied concurrently.

METHODS

Patients.

Forty-nine patients were included in the study, 28 males and 21 females ranging in age from six to 67 years. Thirty-six had had their acute illness in the 1953 epidemic, and nine in 1952; the remaining four were sporadic cases from other years. Forty of the patients were still in hospital with respiratory paralysis.

The diagnosis of poliomyelitis was unequivocal, and all had considerable residual paralysis. However, at the time of this study they were in good general health; five of the patients had quiescent renal calculi and one patient with severe residual bulbar paralysis had to be fed entirely by stomach tube.

Control Subjects.

Forty-three control subjects were also studied, 35 females and eight males; all were adults, and most were employees of the hospital. All were in good health. None had had a clinically recognized attack of poliomyelitis although most of them had been residents in epidemic areas.

Samples for Antibodies.

Blood samples from patients and controls were collected under sterile conditions for antibody study at the beginning of the trial and at subsequent intervals as noted later. The sera were separated aseptically and stored at –20° C. The samples were identified by number only and the key to this was not supplied to the laboratory staff until the completion of all the tests.

Vaccination.

Vaccination was with Connaught Laboratories poliomyelitis vaccine, lot No. 30-1, injected subcutaneously in 1-ml. doses. The first dose was administered immediately after the first serum sample was collected. The second serum sample was collected and the second dose given four weeks later. The third sample was collected and the third dose given four months later. The fourth sample was taken four weeks after the third dose of vaccine. Analysis of these specimens showed that 30 patients and 21 controls produced antibody titres of 1 in 16 or less to one or more virus types. A fourth dose of vaccine was administered to 22 of these patients and 10 controls 11 months after the second dose of vaccine and a fifth blood specimen was collected from them three weeks later.

Serological Tests.

Antibody levels were determined by serum neutralization tests in human second-generation amnion tissue culture, the preparation of which is detailed below. Sera were diluted serially 1:4 to 1:1024 and distributed to tubes in 0.5 ml. volumes. Each type of poliomyelitis virus was added so that every 0.1 ml. of the serum-virus mixture contained 100 CPD_{50} of virus. After one hour's incubation at room temperature, 0.1 ml. of each virus-serum dilution was inoculated into a tube of amnion cells and incubated at 36° C. in a stationary rack. Readings were made microscopically after four days. Each test included cell controls, a virus titration and a gamma globulin titration to check the reproducibility and sensitivity of the test. The first four serum specimens received from one patient were tested simultaneously. The antibody titre was expressed as the highest dilution of serum that completely protected the cells from the cytopathogenic effect of the virus.

Preparation of Tissue Culture.

Second-generation amnion cells were used throughout the study. The method used in the preparation of the primary amnion cell suspension was the one described by Wilt, Stanfield, and Leindl of this laboratory.[7] Stock bottles of amnion cells were prepared by dispensing the cell suspension into standard milk dilution bottles at a concentration of 300,000 cells per ml. When a confluent sheet of cells formed (six to seven days), the nutrient medium was removed, 0.5% trypsin 1:300* was added and the bottles were incubated for 30 minutes. Cell clumps were broken up by vigorous pipetting and cells collected by centrifugation at 600 r.p.m. for 10 minutes. Sedimented cells were diluted in propagating medium consisting of 60 parts Hanks balanced salt solution, 20 parts tryptose phosphate broth, 20 parts horse serum to which had been added 200 units of penicillin and 100 μg. streptomycin per ml. The suspension was counted in a hæmocytometer and further diluted in propagating media to yield 50,000 cells per ml. Volumes of 0.5 ml. were dispensed into roller tubes and incubated in stationary racks at 36° C. for two to three days. At the end of this time the nutrient medium was removed and a maintenance solution[8] containing 5% horse serum added. Tubes were ready for use on the fourth or fifth day after dispensing.

*From the Departments of Bacteriology of the University of Manitoba, the Winnipeg General Hospital and the Winnipeg Municipal Hospitals. This study was aided by a Federal-Provincial Public Health Grant (No. 606-11-12).

*Commercial preparation (Nutritional Biochemicals Corp.).

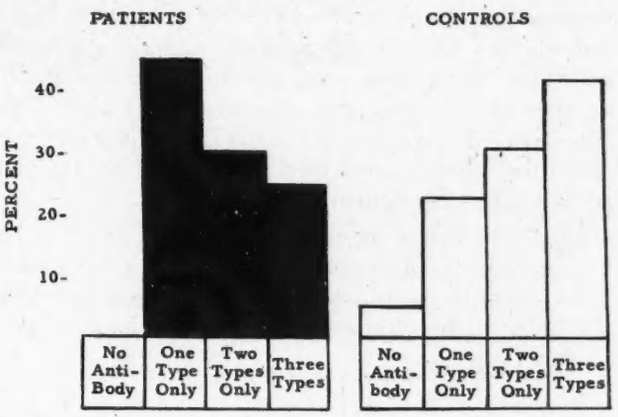

Fig. 1.—Distribution of serum antibodies for one or more types in pre-vaccination specimens.

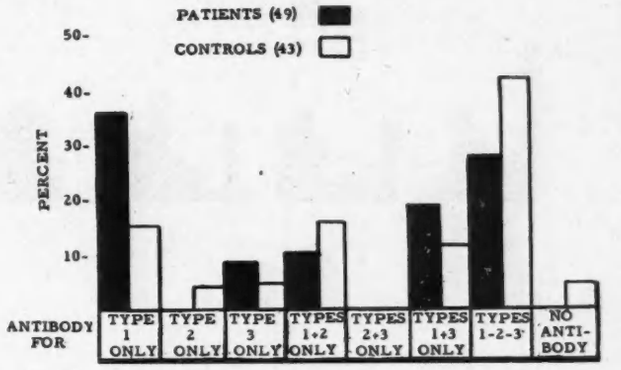

Fig. 2.—Frequency of occurrence of serum antibodies for one or more types of poliomyelitis virus in pre-vaccination specimens.

RESULTS AND DISCUSSION

Pre-Vaccination Antibody Levels.

Fig. 1 compares the incidence of antibodies to one type only, two types only and all three types in the patients and the controls. Antibodies to only one type occurred more frequently in the patient group than in the control group ($0.1<p<0.05$)* and conversely antibodies to all three types were seen more frequently in the control group than in the patient group. Fig. 2 shows that it was the Type 1 antibody that commonly occurred alone in the patients ($0.1<p<0.05$). The control group on the other hand usually had multiple circulating antibodies; Type 2 antibodies were present in a significantly higher proportion of controls than patients ($0.05<p<0.02$). Although these differences do not always achieve statistical significance, the trend suggests that the pre-existing presence of Type 2 antibodies offered some protection against the common Type 1 infecting strain. If this is the case, the outcome of an exposure to poliomyelitis virus would be related to the sequence in which a person was exposed to the different types, i.e. those persons having no antibodies at the time of exposure to Type 1 would have a greater tendency to develop disease than those persons having Type 2 antibodies at the time of exposure to Type 1. Such an antigenic relationship of Types 1 to 2 and 2 to 3 has recently been reported.[9, 10]

It is clear from the pre-vaccination antibody levels that of the 49 patients, 17 had had a Type 1 infection and four had had a Type 3 infection. As the remaining 28 patients had circulating antibodies to two or more types, the virus causing the clinical attack cannot be identified in retrospect.

It is difficult to understand from these results why more patients do not suffer more than one attack of poliomyelitis.

The Effect of Vaccination.

Figs. 3, 4 and 5 show the response in circulating antibodies after each of three doses of vaccine. The Type 1 antibody levels achieved were somewhat higher than Type 2 or 3 for both patients and controls. This is probably related to the greater percentage of both groups showing antibodies to Type 1 virus on the pre-vaccination sample. The effect of pre-vaccination antibodies is again illustrated in the difference between responses of patients and controls to Type 2 virus; the controls responded better than the patients to the first

*Chi-square test.

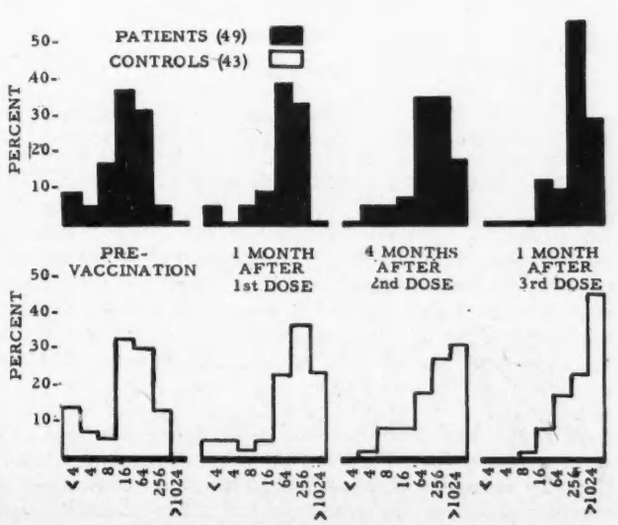

Fig. 3.—Type 1 antibody response to vaccination.

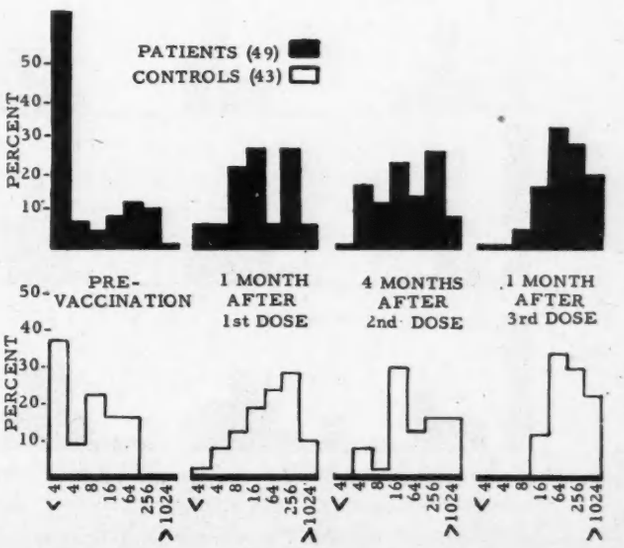

Fig. 4.—Type 2 antibody response to vaccination.

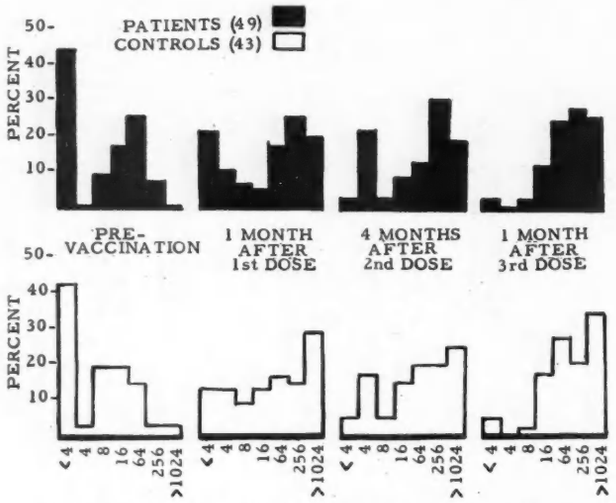

Fig. 5.—Type 3 antibody response to vaccination.

dose, but the levels after the third dose were about the same. The response to the Type 3 virus was slightly less than to the Type 2 virus, with two subjects in each group showing no antibodies to Type 3 after the third dose.

It is concluded from these results that the patients as a group responded as well as the controls did.

The Effect of the Fourth Dose of Vaccine.

The four subjects showing no response and 25 others from both groups who responded with a titre of 1:16 or less to one or more types were given a fourth dose of vaccine 11 months after the second dose and blood samples were taken three weeks later. The results are shown in Fig. 6, the pre-vaccination result being compared with the results after the third and fourth doses. The fourth dose produced additional response to each type. All persons who had no antibodies after the third

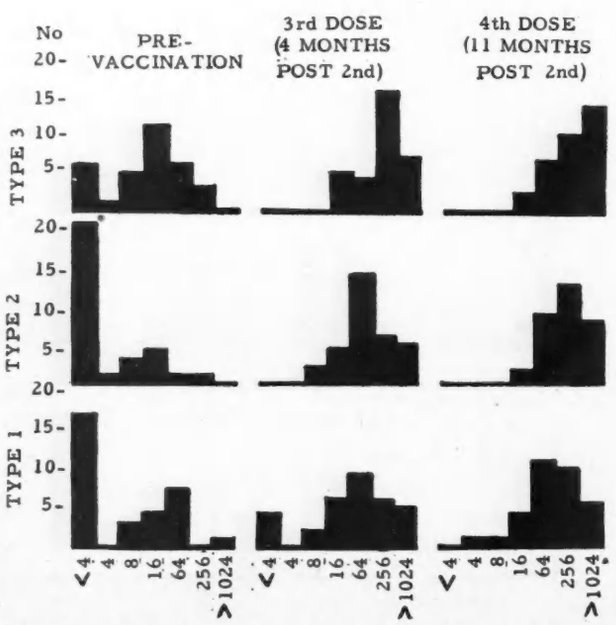

Fig. 6.—Antibody response after the fourth dose (32 persons).

inoculation developed antibodies after the fourth inoculation. Of the two patients with no antibodies after the third dose, one developed antibodies to a titre of 1:8 and the other to a titre of 1:16. The two control subjects, with no antibodies after the third dose, developed antibodies to 1:4 and to 1:8 after the fourth dose.

It is advocated by some that, if the interval between the second and third dose is less than seven months, a fourth dose should be given after this interval has elapsed.[11] Our results lend support to this policy.

Conclusions

The production of circulating antibodies to poliomyelitis virus vaccine has been compared in patients convalescent from poliomyelitis and normal persons. The response varies in individuals but the patients as a group responded as well as the controls did.

The most evident difference between the two groups was in the incidence of antibodies in the pre-vaccination blood samples, which demonstrated that a higher proportion of patients than controls had circulating antibodies to a single virus type and that a higher proportion of controls than patients had antibodies to all three types of virus. A significantly higher proportion of controls had antibodies to Type 2 virus, which suggests that Type 2 virus offers some protection against infection with Types 1 and 3.

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RÉSUMÉ

La susceptibilité à l'atteinte paralytique de la poliomyélite serait-elle fondée sur une pénurie d'anticorps? Les auteurs de cet article ont cherché à vérifier cette hypothèse par une expérience controlée. Un groupe de 49 convalescents de la forme paralytique de poliomyélite furent vaccinés selon la méthode courante, et leurs taux d'anticorps avant, pendant et après la vaccination furent comparés à ceux de 43 témoins bien portants vaccinés dans les mêmes circonstances. La différence la plus sensible entre les deux groupes fut trouvée dans la période précédant la vaccination. On remarqua en effet qu'une plus grande proportion de paralysés ne possédaient qu'un seul type d'anticorps alors qu'une plus grande proportion d'individus en santé possédaient les anticorps des trois types de virus. On observa une prépondérance d'anticorps du virus de type 2 chez les individus témoins, différence qui permettrait de conclure que cet anticorps pourrait offrir une immunité quelconque contre les infections des types 1 et 3.

Case Reports

GENERALIZED NORTH AMERICAN BLASTOMYCOSIS

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THIS CASE is being reported because of several unusual features. The clinical course was rapid and resembled that of pyogenic septicæmia. The fact that fungi were found in scarred mediastinal lymph nodes supports the view of Schwarz and Baum[7] that such nodes are part of a "primary complex" from which generalized spread of the disease may occur. Pathological examination showed some unusual features and no chronic skin lesion was present. *Blastomyces dermatitidis* was cultured from the heart blood at autopsy.

CLINICAL HISTORY

This 40-year-old man gave a history of a dry cough for three weeks before admission. A boil developed on the left side of the abdomen. This broke spontaneously seven days before admission to hospital. Two days later, he noticed severe interscapular pain and vomited once after eating. The latter symptoms recurred the following day and for the four days before admission he had vomiting, diarrhœa, afternoon chills and fever with a temperature up to 101° F. There was a weight loss of 18 lb. during this three-week period.

He was admitted to another hospital on December 19, 1956. On physical examination there, he was pale and in no obvious distress, temperature 99° F., pulse 88, blood pressure 118/80 mm. Hg. The area of the boil on his abdomen was well healed. Murphy's sign was positive, and pain radiated to the left shoulder on deep palpation of the right upper quadrant. Otherwise, physical examination did not reveal anything of note.

Blood Wassermann was negative; hæmoglobin 12.6 g. per 100 c.c., red cell count 4,182,000, white cell count 12,850, serum amylase 80 units (normal 70-120 units); urine cloudy, pH 5.0, specific gravity 1.018, albumin trace, sugar and acetone absent; microscopic examination showed many pus cells and bacteria. A chest radiograph on December 21 showed generalized parenchymal changes throughout both lung fields with evidence of scarring in the plane of the 5th left interspace anteriorly. Initial therapy consisted of Kaopectate and a liquid diet. Fortimycin 1.5 c.c. b.i.d. was started on December 21. Pressure on the area of the boil now yielded a purulent discharge. Chloramphenicol was substituted for Fortimycin on December 24, and soon afterwards large "welts" appeared on the hands and forehead. On Deccember 26, small pustules were noted scattered over the body and the patient had marked anorexia. On December 27, the white cell count was 16,500 with 79% polymorphonuclear leukocytes, 17% lymphocytes and 4% monocytes. Stool culture demonstrated normal flora, urine culture a moderate growth of hæmolytic *Staphylococcus albus*, coagulase positive; blood culture did not result in any bacterial growth; culture of pus from one of the pustules showed a marked growth of hæmolytic *Staphylococcus albus*, sensitive to erythromycin and novobiocin. Agglutination tests for Brucella and Salmonella were negative. On December 28, novobiocin was started. On December 30, the pustules were large and new ones were appearing, and erythromycin was also started. The results of urinalyses on January 1, 2 and 3, 1957, were similar to those on admission, except that pus casts were noted. On January 3, the patient was transferred to the Royal Victoria Hospital with a diagnosis of furunculosis and probable renal carbuncle.

Physical examination here showed a temperature of 101° F. He was a middle-aged man in obvious distress with painful large pustular lesions covering the trunk, extremities, face and head. Shotty lymph nodes were palpated in the axillæ and groins. Moist rales were heard over all areas of both lungs and a grade 1 systolic murmur over the entire precordium. The liver was palpable one finger's-breadth below the right costal margin. The results of physical examination were otherwise within normal limits.

Urinalysis showed albumin 1+; microscopic examination of the urine showed pus, pus casts, granular casts and yeast cells. No significance was attached to the latter finding at this time. Repeat urinalysis two days later differed only in showing a trace of albumin. Hæmoglobin 11.3 g. %; white cell count 10,000; sedimentation rate 28 mm. in one hr.; prothrombin activity 50%; blood Wassermann test negative; blood sugar 122 mg. %; non-protein nitrogen (N.P.N.) 24 mg. %; total protein 6.08 g. %. A swab from a pustule on January 3 showed a light growth of Micrococci. Blood culture on January 3 did not result in any bacterial growth. Culture of urine on January 4 revealed a light growth of *Escherichia coli grünthali*, sensitive to Neomycin, streptomycin, chloramphenicol, tetracycline, oxytetracycline and Furadantin. Culture of sputum on January 8 showed a moderate growth of *Escherichia coli*, sensitive to streptomycin, chloramphenicol, tetracycline, oxytetracycline, Neomycin and chlortetracycline. Stool culture done on January 12 showed a moderate growth of Micrococci, sensitive to bacitracin and Neomycin.

The patient was treated with novobiocin, erythromycin, penicillin and blood transfusions. In spite of these measures, together with intravenous fluid and blood therapy, his condition rapidly deteriorated and he died on January 13. Respirations were very laboured during the last 12 hours of life.

AUTOPSY (six hours after death).

The body was that of a well-developed, well-nourished white male, weighing 154 lb. and measuring 165 cm. in length. Innumerable crusted lesions were diffusely scattered over the entire body surface, measuring from 3 mm. to 3 cm. in diameter.

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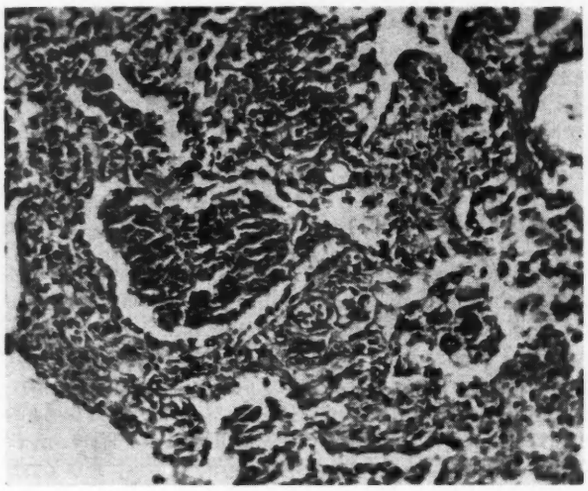

Fig. 1.—Section of lung showing granulomatous pneumonitis. The double-contoured organisms are clearly visible. Hæmatoxylin and eosin preparation. × 200.

The lesions were more numerous on the face. Removal of the crusts allowed the escape of pus. Shotty superficial lymph nodes were palpable in the axillæ and groins.

When the skin was incised, many abscesses were discovered in the subcutaneous fat. Gross lesions were present in the lungs, mediastinal lymph nodes, liver, spleen, kidneys and prostate.

Lungs.—The right lung weighed 1255 g. and the left lung 1240 g. All pleural surfaces were covered with a thin film of fibrinous exudate. Many 2-4 mm. white areas were visible over the pleural aspect of the lungs. These had a narrow zone of peripheral hyperæmia. The organs were firm and homogeneous, and on section exuded a large amount of bloody fluid. Very numerous 2-4 mm. white areas were present on the cut surfaces superimposed on a dark red background. No pus could be expressed from the cut surfaces or bronchi.

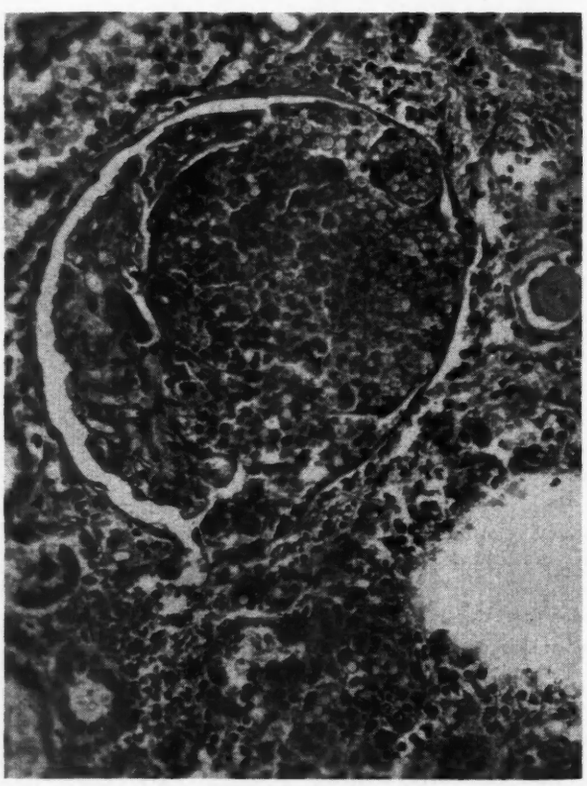

Fig. 2.—Section of the kidney. Note the heavy involvement of the glomerulus. Organisms are seen in a tubule above and to the left of the glomerulus. The space at lower right is artefactual.
Hæmatoxylin and eosin preparation. × 200.

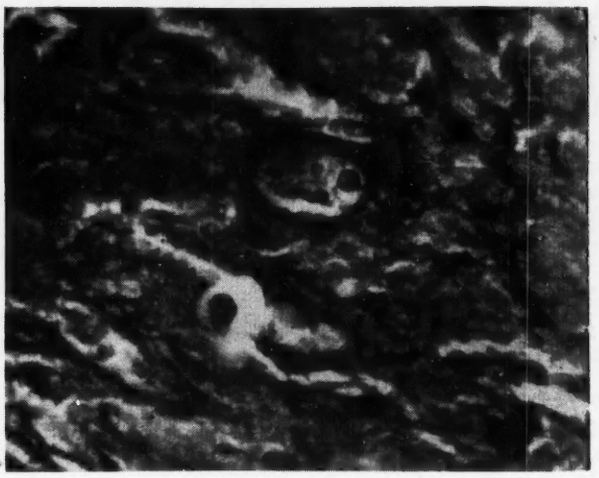

Fig. 3.—Scar in mediastinal lymph node. Two of the organisms are seen.
Periodic-acid-Schiff reaction. × 900.

Several *mediastinal lymph nodes* were enlarged and hyperæmic, and two showed white, firm areas, measuring up to 1 cm. in greatest diameter, sharply circumscribed from the surrounding tissue.

Liver.—It weighed 2660 g. and was firm. On section, it showed congestion, the hyperæmic areas being rather widely separated by pale homogeneous tissue. The appearance was considered to resemble somewhat a leukæmic infiltration.

Spleen.—It weighed 550 g. and was extremely soft. The cut surface had a dark red colour with numerous round, firm, white, poorly circumscribed areas diffusely scattered over it. These measured from a few millimetres to one centimetre in size.

Kidneys.—The right kidney weighed 400 g. and the left kidney 435 g. The capsules stripped easily, revealing dark red surfaces on which 2-4 mm. white areas were diffusely scattered. On section, white streaks were apparent, extending from the cortices into the medullæ. These were separated by hyperæmic zones. No purulent material could be expressed and the white areas were firm in consistency. The corticomedullary demarcations were partly obscured. There was slight hyperæmia of the renal pelves.

Prostate.—It was enlarged and showed several small abscesses on section. The remainder of the organs were grossly normal.

The appearance of the organs that showed gross changes and especially the marked enlargement of the kidneys was unusual in the experience of those viewing the postmortem organs. A frozen section was therefore made of a piece of liver tissue. This revealed granulomatous lesions in which multiple budding yeast-like organisms were seen.

MICROSCOPIC EXAMINATION

There was heavy granulomatous inflammatory involvement of all the organs showing gross changes. This was characterized by foreign-body giant cells, epithelioid cells, neutrophilic leukocytes, lymphocytes, plasma cells and some eosinophilic leukocytes. The organisms were quite readily seen in these le-

sions on hæmatoxylin and eosin preparations. In all instances, they were present in the yeast phase and were often within the cytoplasm of the foreign-body giant cells. Involvement of the lungs was similar in many sections of all lobes with a confluent granulomatous pneumonic consolidation and minute focal areas of abscess formation. Abscesses were seen in the skin, spleen and the prostate. The latter tissue was almost entirely replaced by the inflammatory process.

Granulomas, not visible grossly, were found microscopically in the epicardial fat, pituitary, thyroid, testes and right epididymis. Only one lesion was found in the brain, in the subependymal zone of the 3rd ventricle. Organisms were visible in all the granulomatous lesions on routine stains and occasionally were seen within blood vessels.

The periodic-acid-Schiff reaction showed the organisms to advantage. This stain also demonstrated fungi in one of the scars present in the mediastinal lymph nodes. No bone marrow lesion was discovered in the routine section of bone. No small forms of the fungus as previously reported by others[5, 9, 10] were seen in any of the lesions. No primary focus was found in the lungs, to correspond with the mediastinal lymph node scar.

After the frozen section of the liver had demonstrated a fungus infection, the heart's blood taken at autopsy was inoculated on Sabouraud glucose agar and brain-heart infusion agar and incubated at 25° and 37° C. Seven days after inoculation, many colonies of the yeast-like growth-phase of *Blastomyces dermatitidis* were seen in all tubes incubated at 37° C. Several days later, all tubes incubated at 25° C. were practically overgrown by the filamentous growth-phase of *Blastomyces dermatitidis*.

DISCUSSION

This case is of interest to the clinician because of the unusually rapid course simulating a pyogenic septicæmia. This contrasts sharply with previously reported cases.[2, 3, 6] However, a case has been reported with a duration of 20 days, in which the lesions were confined to the lungs. This patient also received many antibiotics in large dosage.[1] The failure to demonstrate a highly pathogenic pyogenic bacterium, even with repeated bacteriological studies, in an individual with a clinically obvious generalized infection, might in retrospect have led to the true diagnosis. The discrepancy in the urinary findings, which showed only a trace to 1+ albumin in the presence of pus and pus casts, may also be important and it is possible that the "pus" casts may actually have consisted of the organisms, as casts consisting almost entirely of *Blastomyces dermatitidis* were seen in the kidney at autopsy. It must also be noted, however, that one observer saw yeast cells in the urine, but this finding was apparently discounted.

Pathologically, the absence of any *chronic* skin lesion is of interest. This, together with the finding of fungi in the scars of the mediastinal lymph nodes, supports the claim of Schwarz and Baum[7] that North American blastomycosis is primarily a respiratory infection with a behaviour analogous to that of tuberculosis. The present case has many similarities to miliary tuberculosis, if the lesions in the mediastinal lymph nodes are regarded as being similar to those of a primary Ghon complex.

The absence of bacteria in the histological preparations, the failure to demonstrate significant pathogens in numerous cultures taken during life, and the growth of *Blastomyces dermatitidis* from the heart blood at autopsy, established this organism as the causative agent. Dissemination was clearly hæmatogenous. The lungs and/or the mediastinal nodes seem to provide the only focus or foci from which such a dissemination could have originated. A primary inoculation of the skin of the abdomen seems unlikely, as in all proven cases of primary cutaneous North American blastomycosis there has always been an accompanying local lymphangitis and lymphadenitis, both of which were absent in this case.[11]

Several unusual features were noted microscopically; the renal lesion was uncommon in that casts composed of organisms were present in many of the tubules;[7] the glomeruli showed striking changes, many of them being almost entirely replaced by heavy fungal growth. The widespread hepatic involvement resembled miliary tuberculosis and the spleen showed numerous microscopic abscesses.[6, 7] The pituitary contained three discrete foci, one each in anterior and posterior lobes and the stalk. This sugests hæmatogenous dissemination in contrast to the usual contention that pituitary lesions are secondary to meningeal involvement.[7] No lesions or organisms were demonstrated in sections of the vertebral marrow, which is surprising in view of the ease with which they were demonstrated elsewhere.[7] This widespread and massive dissemination is in keeping with the rapid and severe clinical course of the illness.

Finally, culture of the organism from the blood, either ante mortem or post mortem, has been infrequently reported.[8] It seems to us unlikely that the organism grown from the blood by Stober was actually *Blastomyces dermatitidis*.[4]

The rapid clinical course and the heavy and varied antibiotic therapy raises the question of a more than fortuitous relationship between them.

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SUMMARY

A case of generalized North American blastomycosis is reported. The clinical course was rapid and resembled septicæmia. The absence of chronic skin lesions is noted, and the finding of fungi in the scars of mediastinal lymph nodes gives weight to the claim of Schwarz and Baum that North American blastomycosis is primarily a respiratory disease resembling tuberculosis.

Blastomyces dermatitidis was found in sections of lungs, mediastinal lymph nodes, subcutaneous tissue, skin, liver, spleen, kidneys, prostate, testes, right epididymis, epicardium, brain and pituitary. It was isolated from the heart's blood at autopsy.

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RINGWORM IN SOUTHWESTERN ONTARIO CAUSED BY TRICHOPHYTON VERRUCOSUM

M. S. SMOUT, M.D.* and
A. BAKERSPIGEL, M.A.,† *London, Ont.*

IN A RECENT REPORT Georg, Hand and Menges[1] discussed in detail the dermatophytes involved in rural and urban ringworm in Northeastern Michigan. They found in a series of 63 cases from rural areas that the number of patients infected by *Trichophyton verrucosum* and *Trichophyton mentagrophytes* was about equal. The infections caused by *T. verrucosum* were in many instances directly related to contact with infected cattle. In 1955, Bakerspigel and Bremner[2] recorded 84 cases of ringworm in Alberta and Saskatchewan caused by *T. verrucosum*. They stressed the importance of infected cattle (and other animals) in the spread of the disease to human subjects. Subsequently a number of similar cases presenting inflammatory lesions or kerion have been observed and treated in Southwestern Ontario. Since no reports of ringworm in human beings caused by *T. verrucosum* in Southwestern Ontario have appeared, records of five such cases studied in London, Ontario, within the past year are presented below.

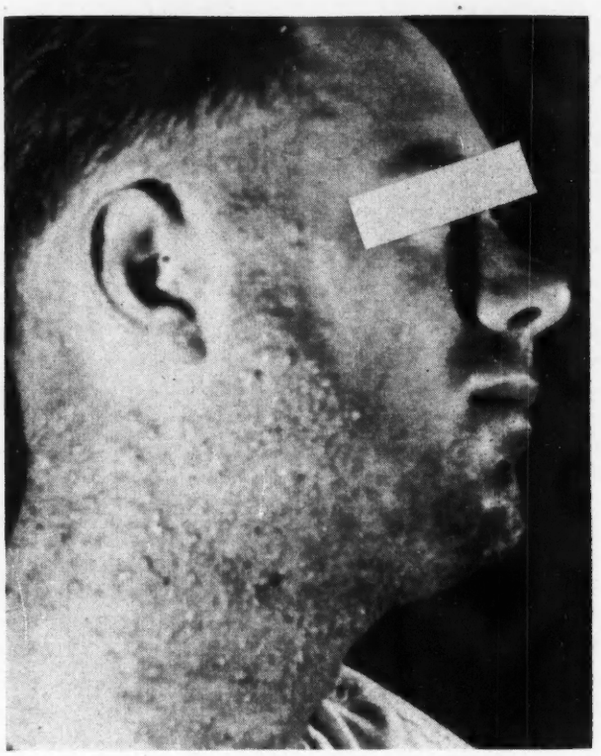

Fig. 1a.—Follicular stage of tinea barbæ caused by *T. verrucosum* (Case 1), approximately eight weeks after onset of infection.

CASE 1.—J.M., a 27-year-old white male, had scaling circumscribed reddish lesions on his face treated as sycosis barbæ since December 1956. About February 14, the lesions became pustular (Fig. 1a) and involved the entire neck and right side of the face. A few smaller scaling lesions were present on the left thorax, right arm and left ankle.

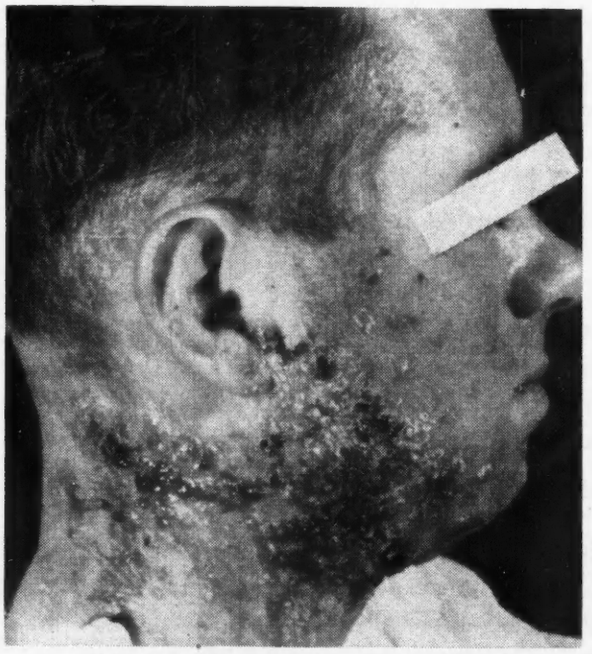

Fig. 1b.—Same case two weeks later.

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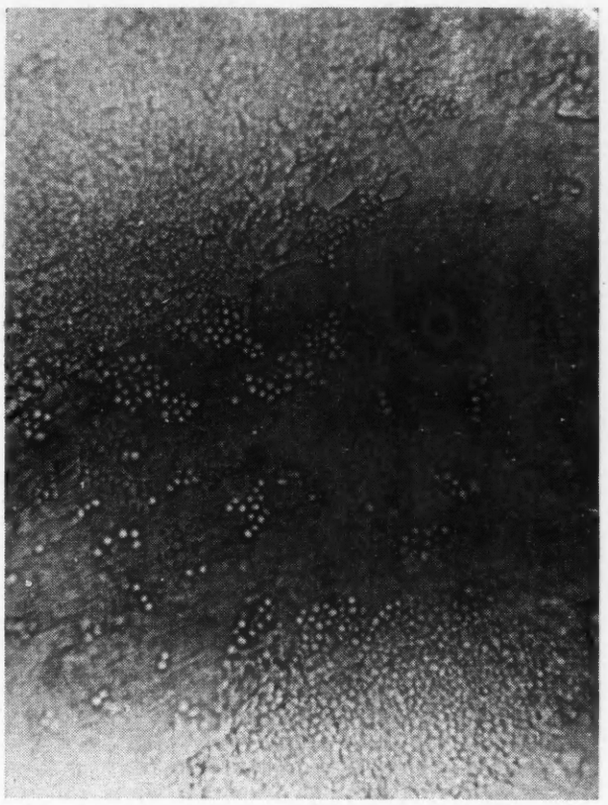

Fig. 1c.—Appearance of infected hair in a KOH mount taken from the bearded area (Case 1). Note the ectothrix invasion of this hair by large fungal spores.

The patient was a farmer who handled cattle which, in his own words, had 'ringworm'. During the first few days in hospital, the facial eruption became worse and progressed to a crusting, œdematous, boggy lesion that drained seropurulent material (Fig. 1b). Crusts and infected hairs were removed whenever possible. A routine culture indicated that bacterial infection was insignificant. The lesions continued to exude seropurulent material and on March 8 the patient insisted upon discharge from hospital. Many areas on the face and neck were still crusting and draining. A follow-up showed him to be free of active infection but with considerable residual scarring about the face and neck. Unfortunately photographs could not be obtained at this stage. Attempts to obtain infected material from the patient's cattle were unsuccessful.

CASE 2.—M.C., a 38-year-old white male, was first seen on March 28, 1957, with a severe kerion of the upper lip that had been present two weeks and was thought to be sycosis barbæ. The inflammation appeared to be subsiding at this time and the patient improved rapidly with treatment.

CASE 3.—J.H., a 10-year-old white male, was refered to a dermatologist on March 16, 1957. One month previously the boy developed scaly erythematous discrete patches of low-grade dermatitis on the lateral and posterior neck and scalp. There was a gradual progression of the lesion despite treatment, to involve five areas of the scalp and to produce kerion. By March 30, 1957, all areas were improving and the child was last seen at that date.

CASE 4.—P.P., a seven-year-old white male, was admitted to Victoria Hospital on November 22, 1956. Four weeks before admission he developed a small area of dermatitis on his left hand between the third and fourth fingers. This increased to involve the back of his hand and the palm. The area was scaling and red but not draining any material. There was no history of contact with known ringworm. A scaling area 6 cm. in diameter developed anterior to the left ear and a kerion developed on the occiput. The child was discharged much improved on December 21, 1956.

CASE 5.—Material was sent to us for culture from this 42-year-old white male when he appeared in a physician's office on November 6, 1956. At this time a boggy, indurated, firm, nodular mass, which measured about 5 cm. in greatest dimension, was present below his right mandible. There was a pustular folliculitis of the skin. The man was a farmer who tended cattle. He stated that young cattle occasionally had similar lesions and believed that his own infection came from cattle. He did not return for further treatment.

MYCOLOGY

Hairs and skin scrapings from these cases were examined microscopically by mounting them in a few drops of 10% KOH on a glass slide. Infected hairs showed an ectothrix invasion by large spores and mycelial fragments as shown in Fig. 1c. In KOH mounts of infected skin scrapings mycelial fragments could also be seen.

To obtain cultures, hairs and skin scrapings were inoculated on Sabouraud's glucose agar medium (with yeast extract added) and Littman oxgall agar medium.[3] The inoculated plates were incubated both at 24° C. (room temperature) and at 37° C. In all five cases, cultures could be identified on these media as *T. verrucosum* within two weeks.

DISCUSSION

It cannot be over-emphasized that early recognition of ringworm infection is important so that proper therapy may be instituted. The ease of detecting the nature of the disease using a KOH mount in the physician's office has been adequately expressed. Case 1 clearly demonstrates this need for early and accurate diagnosis. Furthermore, the seemingly high prevalence of ringworm among the rural population, especially those handling cattle, should immediately suggest to the physician the possibility of this disease when confronted with a cutaneous lesion.

SUMMARY

Five cases of ringworm infection caused by *T. verrucosum* in Southwestern Ontario are recorded.

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Emphasis is placed on the need for early and correct diagnosis.

The relative ease by which such cases may be recognized by the physician is pointed out.

We wish to thank Dr. W. E. Pace and Professor J. C. Rathbun of London and Dr. A. C. Green of Blenheim for granting permission to report their cases. We are also grateful to Mr. W. Dobson, B.Sc., for submitting to us one of these cultures for study.

ADDENDUM

Since preparation of this manuscript, *Trichophyton verrucosum* has been cultured by one of the authors (A.B.) from an additional case. The patient, G.W., a 19-year-old white female, had a scaling lesion under the right ear. She is a city dweller who gives no history of contact with diseased people or animals.

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Special Article

HOME CARE—THE HOSPITAL IN THE HOME*

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WE HAVE SEEN, in the past ten years, a tremendous growth and development in the hospital systems both in Canada and in other countries. The time when the hospital was regarded as a place for those about to die has gone, and increasingly it is being used as a resource for health and a place where cure can be assured. The public fear of hospitals has vanished. The advances in medical science in the past half-century have produced a great increase in the length of expectation of life, and the decrease in maternal and infant mortality has exceeded our wildest dreams. However, these successes have led us to the necessity for facing even more complex problems presented particularly by disease in older age groups. It is obviously impossible, or at least will prove extremely expensive, to continue our present line of approach to the cure of illness, particularly to the cure of chronic illness. We are faced in most of the civilized countries with rapidly increasing numbers of older people, and we know from surveys of these older people that they suffer from a great volume of illness. Part of the answer to this problem is in the increased provision of institutional care, but institutional care can represent only a small portion of the care necessary to maintain our aging population in a state of wellbeing.

The patterns of private practice have also been altered by the important technical advances in diagnosis of the past 20 or 30 years. The modern physician relies more and more on batteries of technological tests to establish accurate diagnosis. This changing pattern of practice, associated as it is with an increased use of the hospital and its ancillary facilities, has led to the need for more and more hospital beds, and to increasing pressure on existing hospital beds. The problem is further complicated by the increasing costs of construction of hospitals, and it is probably hard for those not involved in the business of hospital construction to realize that the cost of constructing one hospital bed ranges from $10,000 to as high as $20,000. The cost of staffing and maintaining and looking after the patient in that hospital bed amounts to around $4000 to $5000 per annum.

Let us look at the long-stay picture in Saskatchewan. In 1955 we had a total of 850 patients who were in hospital for 30 days or longer. This was reduced somewhat in 1956 to 707 patients. Their average length of stay in hospital was 104 days. In terms of total patient days it numbered 89,218 in 1955 and 73,753 in 1956. We are more closely concerned with the city hospitals, and if we look at the same figures in relation to hospitals of 200 beds or over, there were 478 in hospital in 1955 for longer than 30 days, and in 1956 there were 409 with an average length of stay of 94.4 days. This resulted in a total number of patient days in 1956 of 38,615. This amount of care was provided in a total of 2267 beds set up. The significance of these figures can perhaps be better appreciated if we realize that around 106 beds were occupied all year round in our city hospitals by patients staying longer than 30 days.

I do not wish to suggest that any or all of these were in hospital unnecessarily, but it is possible that a proportion could have been cared for by a well-organized home care program, or by facilities other than those of a general hospital for acute cases. If a hospital were built in one of the cities to accommodate all of these cases, it would cost between one-and-a-half million and two million dollars. We also, of course, realize that many of these patients come into the city from outlying places, where a home care program would not at present be practical. However, on classifying their place of residence, we find the following: Of the 478 long-term patients hospitalized in the cities there is a surprising close approximation between the number of patients of city residence and those of rural residence. City residents numbered 226, accounting for 24,217 patient days, with an average length of stay of 107.2. Rural residents accounted for 252 patients with almost the same number of patient days (24,215) and they had an average length of stay of 95.7. I would

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*An address to the Annual Meeting of the Victorian Order of Nurses in Regina on February 12, 1957.
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emphasize that only selected patients from this case load would be suitable for home care, but it seems likely that a case load of reasonable proportions could be assumed for a suitable program.

The answer to the ever continuing demand for health facilities by the public does not lie entirely in the provision of ever increasing numbers of hospital beds. There is an alternative which has not yet been fully explored. We have an increased appreciation that the practitioner is no longer at his best single-handed. In order best to practise he must have the facilities of a hospital at his disposal. These facilities include expert laboratory opinion, skilled radiographic interpretation, physiotherapy departments and occupational therapy sections devoted to the continued care of the ill. The development of home care in its fullest sense involves the provision of all these hospital facilities in the home. Teams consisting of medical social workers, psychiatrists, physiotherapists, occupational therapists, nurses, practical nurses, home helps and physicians are now functioning together in a number of places, and are bringing to the patient in his own home surroundings exactly the same type of care which he receives in the hospital wards. Problems of distance, poor housing, and overloading of the physicians with work are the main factors to be overcome. However, none of these obstacles is unsurmountable.

Most people give credit to the Montefiore Hospital in New York as the pioneer in this field of bringing hospital facilities to the patient. I was recently fortunate in being able to spend some time with the Montefiore Home Care Program. I visited patients in company with the Home Care physician, and was very much impressed with the excellent all-round treatment which these patients are receiving. In Canada, this problem has been tackled by a number of hospitals, but I shall quote from the initial project of the Herbert Reddy Memorial Hospital in Montreal, Quebec, to give you some idea of their approach to the problem. Shortage of hospital beds is of course very much more acute in the eastern provinces than it is in Saskatchewan. Nonetheless, we are constantly faced with pressure for the construction of more beds. Some of the questions which were asked at the establishment of the Herbert Reddy Memorial Hospital Home Care Program were (and we can ask them of ourselves):

1. Is it practicable to establish a plan which will provide all the benefits of expert hospital care at home for a very considerable number of patients?

2. Can interns, by visiting patients at home under the supervision of hospital staffs, obtain more knowledge of and acquire more interest in general practice?

3. Can our hospitals by the use of home accommodation eliminate the need for a large number of additional beds?

4. Can the Victorian Order of Nurses or any similar body furnish adequate nursing care, and can co-operation be established between the Victorian Order and the hospital staff?

5. Can the plan become self-supporting and how quickly?

6. Can Quebec Hospital Service Association and insurance company payments (in this province, Saskatchewan Hospital Services Plan) be made adequate to cover medical and nursing care at home?

I would add a seventh question here, and that is:

7. Are physicians prepared to accept for certain of their patients a reasonable program of home care?

If the answer to all or most of these questions is in the affirmative, then a home care program should be considered.

Another problem in this province is that, because of the ready availability, through the Saskatchewan Hospital Services Plan, of financial coverage for an indefinite length of stay in hospital, there is very little inducement for patients, or for families of patients, to take advantage of a home care program.

In the development of a home care program, the medical social worker plays a most important role. It is on the medical social worker that the responsibility rests for evaluation of the home from the point of view of physical conditions. The worker will want to know whether the physical comfort available in the home will be sufficient for the administration of medical and nursing care. Obviously, there are no definite standards for this, as the physical condition of the patient must be carefully correlated with the physical conditions in the home. Another important task of the social worker is the evaluation of the patient's psychological preparedness for leaving hospital and also the patient's reactions to the thought of returning home. Obviously, there is very little point in returning a patient from hospital to a home where he may feel threatened or insecure. On the other hand, the evaluation of the home by the social worker will often produce a clue to the reasons for repeated admissions of certain patients to hospitals. The family's attitude to taking the patient home and their ability to offer their share in the total care program must also be determined. Needless to say, the dollar plays an important part in this type of program, and the family's financial situation must be reviewed.

The role of the social worker does not end with the evaluation of the patient's need, or the evaluation of the home, because frequently the social worker must carefully interpret the patient's problems to the family. It has been found that the greater the family's knowledge of the patient's illness and the ways in which it can be controlled, the less their tendency to view the patient as only a disease entity, since their fears about the illness no longer influence their understanding of the patient and his problems. It also must be realized by all involved—physicians, nurses, family, and patient—that the home care program is an extension of the hospital and is not a casting forth of the patient from the protecting walls of the hospital into a world full of unknown hazards. In other words, the success of any home care program depends

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on the ease with which the patient can be readmitted to hospital if home care is not a success, or if the hospital resources are needed for any other reason. It must be clearly realized that the home care department should be just as much a department of the hospital as the radiology department, the department of surgery or any of the other departments.

It is important, in any successful home care program, that every patient on home care's case-load be carefully considered at regular staff conferences. Cases are also discussed at these staff conferences before being admitted to the home care department. Through the establishment of home care departments, hospitals can really enter into the spirit of community enterprise, because of necessity they become involved with many or all of the community health and welfare agencies.

THE SERVICES UNDER THE HOME CARE PROGRAM

In discussing the services which are provided in a home care program, I will concentrate essentially on the program of the Montefiore Hospital in New York. This is, of course, an excellent program, but nonetheless local modifications are necessary to fit any program in with the individual peculiarities of any locality. Firstly, the home care program is essentially a department of the hospital, equal in rank with other hospital departments. When a referral is received from the hospital waiting list or from an outside source, the patient is visited by a doctor and a social worker who determines his eligibility for home care according to established criteria. When it is decided that a patient no longer requires the specialized facilities of the hospital, such as surgery, x-ray therapy and elaborate diagnostic or treatment procedures, but still needs active medical and nursing service, he is considered for admission to the home care program. The social service worker then interviews the patient and the patient's family, and determines whether the home environment is favourable. If the recommendations and other conditions are favourable, the patient is sent home. In addition, patients on the waiting list are taken directly from the community and the same medical and social eligibility standards applied. The patients are then seen at home as often as their condition requires. There is 24-hour coverage, seven days a week. All the medical specialties of Montefiore Hospital are freely used in the home whenever there is need. If any serious problem arises, all the services of Montefiore Hospital are available. Patients admitted to the home care program are transferred freely between the hospital and the home, the patient being cared for in whichever facility is most suitable. Hospital admission is always recommended to patients who appear to be terminally ill. In many of these cases, surprisingly enough, home care is continued at the insistence of the patient and his family. The visiting nurse service of New York, which is the equivalent of the V.O.N. in Canada, provides nursing service. The immediate duty of the nursing service is to prepare an expert evaluation and a plan of the patient's nursing requirements, as well as an assessment of the family's ability to co-operate in the care. When necessary, the visiting nurse comes in as often as once a day. A goodly portion of her time is taken up in instructing the family in various nursing procedures and in giving hypodermic injections. Monthly reports are sent to the home care department from the visiting nurse service.

I have mentioned already the role of the social worker in this home care team, and it is an important feature of the work here that the social worker maintains interest in the patient all through the period of maintenance on the home care department. Housekeeping is also provided, and this is an increasing factor in making home care a success. Although the cost and time are controlled by the department of home care, the patient retains the status of an employer. He may and often does draw such help from neighbours and friends. The New York State Employment Service is also extensively utilized to provide this help.

Physical therapy was introduced into the home care program in 1947 and continues with an increasing demand. A valuable lesson is taught here, that rehabilitation is frequently worth while despite chronic illness, because of the many years which the chronically ill often live. In many cases, remarkable improvements have been secured through the skilled work of the physical therapists. An occupational therapy section has recently been added, and the occupational therapist is training the patients in home skills, in the manufacture of small objects for sale by which they can often make a small contribution to their cost of maintenance. The program is called "Jobs for the Home-bound". Hospital equipment and medication, such as hospital beds, rubber rings, bed pans, foam mattresses, and wheel chairs, are provided. A recent report by Dr. Basil MacLean of the New York Hospital Commission states that the cost of home care in New York is in the region of $3.50 per day, as compared with the hospitalization cost of $22 per patient day in that city.

There are many human interest stories which can be told about patients who have been on home care and who have recovered almost miraculously through the combined skills of the doctors, social workers, and nurses and the other services of the program.

The leadership for the development of a home care program could come from any number of areas within the community. It might come from the hospital administrators or the hospital boards, who are becoming increasingly aware of the difficulty of caring for long-term patients in our hospital wards.

The first step should be the bringing together of the people interested in chronic illness and those whose services will be required. The committee should then set for itself the following tasks:

1. To determine exactly the amount of chronic disease in the community.
2. To evaluate the resources which are available in the city.
3. To estimate what the gap is between the present resources and those which are needed.

It is important not to attempt to copy slavishly any pre-existing home care program, but to estimate carefully local needs and see that local attitudes are reflected in whatever activity is undertaken. The financing of such a program can be accomplished in many ways. It is possible that it may be done on a voluntary basis, or that the Hospital Services Plan might become increasingly interested in supporting the program. The key to a successful program lies with the medical profession, and it is essential in this type of planning to consult the doctors as individuals and through their medical society.

What are the advantages to the patient?

Firstly, the patient has the advantage of receiving care in the familiar normal environment of his home, and this we think will help to bring about a more rapid recovery and a greater degree of rehabilitation. He receives the support of his family in time of stress. Patients in hospitals also miss the freedom and more flexible routine of home life, and often do not enjoy hospital food. On going home they return to familiar surroundings, familiar meals, familiar bed-times and getting-up times. Naturally, this places some burden on the family, but this may not be a factor which should be weighed too heavily. One of the problems of this modern age is the increasing tendencies of families to shift their responsibilities to governmental and other institutions. It is of course important, and I have no hesitation in re-emphasizing this factor, that the family be supported in their effort by the continued availability of speedy and priority readmission to hospital, by coverage 24 hours a day, seven days a week, and by the knowledge that they are not standing alone in the face of difficulties.

Chronic disease is a universal problem. It is one which is ever increasing. In this introduction to you of home care, the hospital in the home, I have tried to offer what I hope may be a partial solution to a problem which inevitably and inexorably grows in magnitude as the years go by.

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PARTIAL AIR REPLACEMENT DURING THORACENTESIS

Partial replacement of fluid withdrawn on thoracentesis allows one to withdraw large amounts of fluid at one time without upsetting the patient, because changes in intrapleural pressure are so little. It also causes fluid covering the lung to fall away from it, thus revealing in radiographs the surface of the lung and of the parietal pleura. This procedure should be used in all cases of pleural effusion, but with empyema or hæmothorax it is important not to allow any air to remain in the pleural cavity. The air is allowed to enter the pleural cavity freely through the needle in the chest wall when the syringe is disconnected from it. If a needle of size 15 or smaller is used, it is not necessary to measure the amount of air.—R. H. MEADE, *Dis. Chest*, 32: 529, 1957.

SHORT COMMUNICATIONS

A NEW COUMARIN, 3-(1′-PHENYLPROPYL)-4-HYDROXYCOUMARIN (MARCUMAR)*

JEAN-MARIE DELAGE, M.D., F.R.C.P.[C.], RAOUL ROBERGE, M.D., F.R.C.P.[C.] and GUY DROUIN, M.D., F.A.C.C., *Quebec, Que.*

DURING the last few months we have made a clinical study of a new coumarin derivative 3-(1′-phenylpropyl)-4-hydroxycoumarin (Marcumar†). A brief report of our findings is recorded here.

METHODS

The majority of patients were given initial doses while in hospital, and treated subsequently as ambulatory patients. During the first days of treatment, the Quick prothrombin time, pro-accelerin (factor V) and proconvertin (factor VII) were determined. Once the maintenance dose was established, Quick prothrombin time was determined every eight or 15 days. In patients with particularly stable values, the test was repeated at intervals of three weeks only, sometimes every month.

Prothrombin was determined by the original Quick technique, using commercial thromboplastin‡ or a laboratory-made thromboplastin (acetone extract of human brain). Pro-accelerin, prothrombin and proconvertin concentrations were determined by methods inspired by the techniques of Koller[1] and Soulier.[2]

PATIENTS TREATED

As shown in Table I, we have administered Marcumar in several cases of myocardial infarction, acute coronary insufficiency, angina pectoris, thrombophlebitis and a few cases of arterial occlusion.

DOSAGE

European authors[3-5] favour an initial dose of seven tablets or 21 mg., but we have usually administered 18 mg. in initial doses. It is to be noted however that in several patients, mostly with cardiac infarction, the Quick prothrombin time was as low as 60-75% before any treatment. In such cases, it has been our practice to proceed with caution, giving 9 to 12 mg. initially. But in all other cases, doses from 21 to 27 mg. seemed recommended for rapid action. Unlike European authors, we waited two days before giving a second dose, and this varied between 6 and 9 mg. It was then

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†Hoffmann-LaRoche Ltd.
‡Solu-Plastin, Frosst.

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TABLE I.—DISTRIBUTION OF CASES TREATED WITH MARCUMAR

Case	*Age*	*Diagnosis*	*Duration of treatment*
1	39	Myocardial infarct	82 days
2	52	Acute coronary insufficiency	152 "
3	69	Myocardial infarct	101 "
4	72	Myocardial infarct	35 "
5	60	Myocardial infarct	24 "
6	53	Old myocardial infarct, angina pectoris	343 "
7	47	Myocardial infarct	14 "
8	46	Old myocardial infarct, acute coronary insufficiency	210 "
9	48	Postoperative thrombophlebitis	15 "
10	45	Internal carotid thrombosis	213 "
11	62	Myocardial infarct	57 "
12	20	Superficial phlebitis	5 "
13	48	Angina pectoris	43 "
14	53	Myocardial infarct, popliteal embolism	56 "
15	73	Myocardial infarct	7 "
16	63	Myocardial infarct	49 "
17	42	Myocardial infarct	18 "
18	42	Myocardial infarct	23 "
19	39	Old myocardial infarct, acute coronary insufficiency	33 "
20	61	Myocardial infarct	36 "
21	57	Myocardial infarct	35 "
22	52	Myocardial infarct	15 "
23	61	Myocardial infarct	155 "
24	42	Acute coronary insufficiency	9 "
25	49	Myocardial infarct	305 "
26	45	Angina pectoris	456 "
27	54	Myocardial infarct	390 "
28	41	Myocardial infarct	334 "
29	45	Iliofemoral thrombophlebitis	5 "
30	32	Postpartum thrombophlebitis	14 "
31	50	Old and recent myocardial infarct	374 "
32	62	Old and recent myocardial infarct	14 "
33	54	Old myocardial infarct, acute coronary insufficiency	34 "
34	38	Acute coronary insufficiency	121 "
35	54	Iliofemoral thrombophlebitis	12 "
36	56	Acute coronary insufficiency	44 "
37	52	Myocardial infarct	97 "
38	55	Myocardial infarct	372 "
39	53	Myocardial infarct	267 "
40	59	Myocardial infarct	125 "
41	56	Myocardial infarct	7 "
42	61	Acute coronary insufficiency	28 "
43	60	Angina pectoris	302 "
44	48	Acute coronary insufficiency	20 "
45	41	Myocardial infarct	382 "
46	48	Myocardial infarct	30 "
47	59	Myocardial infarct	40 "
48	65	Myocardial infarct	17 "
49	48	Acute coronary insufficiency	32 "
50	76	Myocardial infarct	62 "

possible to determine the maintenance dose, which ranged from 1½ to 6 mg. per day. But no standard maintenance dose can be consistently established; in the administration of anticoagulants, allowance should be made for individual susceptibility. Although the majority of patients may thrive on a constant maintenance dose, many others require frequent change in dosage.

DURATION OF TREATMENT

In cases of thrombophlebitis of the inferior limbs, treatment lasts from eight to 20 days. In angina pectoris, acute coronary insufficiency and acute myocardial infarction, treatment is prolonged. Some of our patients with coronary disease have been under treatment for over a year. Prolonged anticoagulant treatment involves many factors such as the patient's ability to come at regular intervals for a Quick prothrombin determination, his comprehension of the treatment, and its possible consequences when the nature of the patient's work might expose him to dangerous injury.

Table I shows that 50 patients were treated during a total of 5592 days.

ACCIDENTS AND INCIDENTS

Fortunately, we have no serious accidents to report. In four instances only have we had to treat a hæmorrhage which could be imputed to medication. In the first instance, the patient suffered two epistaxes of short duration which occurred with prothrombin time of 5%. The second patient had to be hospitalized for a hæmatoma which covered his entire thigh after a fall against a hydrant. The third one had abundant hæmaturia on the sixth day of treatment. This patient had neglected to appear on the fourth day for a prothrombin determination and when the incident happened, his prothrombin and proconvertin values were abnormally low (less than 5%). The fourth patient gave some signs of hæmaturia after several months of treatment, and just a few days after his prothrombin determination had revealed a concentration of 15%.

EFFECTS OF VITAMIN K

An excessive fall in prothrombin time prompted us to prescribe vitamin K_1 (as Konakion) in a few patients as a prophylactic measure. From one to three ampoules in a sweetened liquid bring the Quick prothrombin time back to the safety zone within a period of from eight to 24 hours. In no case have we been compelled to administer vitamon K_1 parenterally. Patients on a lengthy regimen always carry on their person two ampoules of oral Konakion or an injectable ampoule of the same product.

EFFECT OF MARCUMAR ON COAGULATION

Fig. 1 shows that the effect of Marcumar on coagulation is that of all coumarins: Marcumar depresses prothrombin and proconvertin concentration. The Quick prothrombin time is lowered to a therapeutic range in an average of 48 hours, but we are inclined to believe that an initial dose of 24 mg.—even 30 mg.—would cause a more rapid fall. Return to a normal level is very slow. Sometimes the Quick time is still prolonged five days after interruption of medication.

As we have already stated, there are individual sensitivities. One patient, F.V., maintained a level of 10% during nine days after a single dose of 12 mg. The patient had been treated with heparin before Marcumar, and his prothrombin time was 50% lower than normal even before any coumarin medication was given. Was this high sensitivity due to the former

heparin treatment? It would be more logical to infer that an individual factor was present.

COMMENTS

After administration of Marcumar to 50 patients* during a period totalling 5592 days, we have been brought to recognize the efficacy and safety of this coumarin. It appears to be absolutely devoid of any toxicity. Its action is slow, beginning some 36 to 60 hours after initial dosage, according to the initial dose. It is maintained over a long time. Naturally Marcumar offers the usual advantages and drawbacks of slowly acting anticoagulants. The current trend is for short-acting anticoagulants, and such a trend appears to derive from theoretical rather than factual considerations. Let us consider the case of a patient in hospital. His prothrombin concentration is measured regularly to prevent accidents. Should excessive hypocoagulation appear, it is soon checked. Slow-acting anticoagulants are to be feared more in the case of ambulatory patients, especially when the intervals between prothrombin controls are too long. But here also the apparent superiority of short-acting anticoagulants is illusory. Let us take the fictitious case of an ambulatory patient who is, unknown to himself, in a state of dangerous hypoprothrombinæmia, with no symptoms whatever to alert him. He will continue to absorb his maintenance dose until hæmorrhage occurs. At this stage emergency treatment will be the same: vitamin K_1 and possibly blood transfusion. Whether this patient has absorbed a rapid-acting or a slow-acting anticoagulant, the situation is similar. The main point is to *avoid excessive hypocoagulation and have a sufficient knowledge of contraindications.*

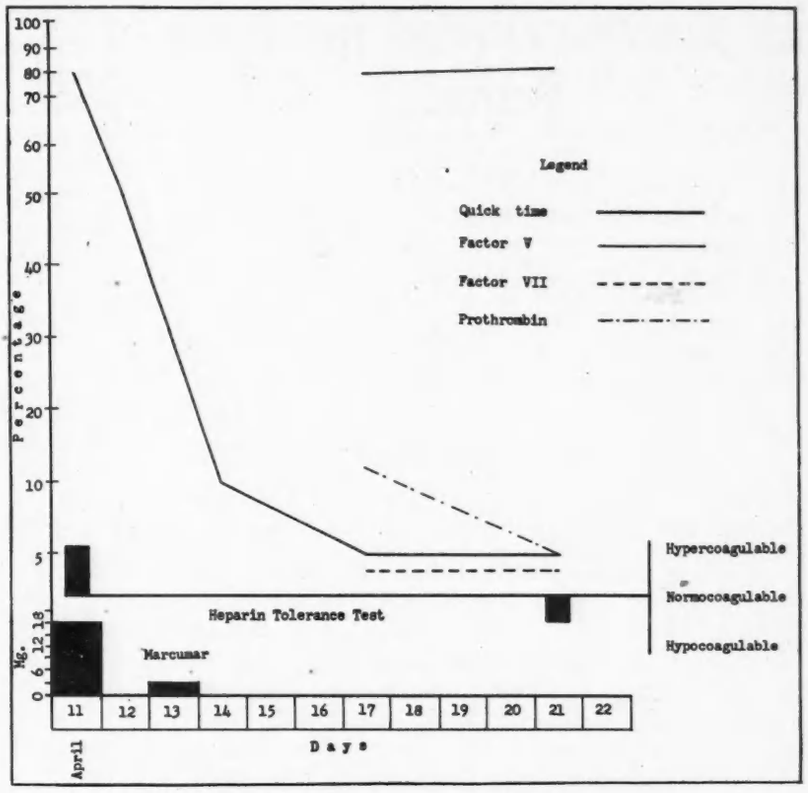

Fig. 1.—Effect of Marcumar on prothrombin complex.

Others might argue that, in the case of hæmorrhage, a return of the prothrombin time to a safe level would take longer with a slow-acting anticoagulant, but the argument does not hold. Our experience and that of European authors with Marcumar have proved that an adequate dose of vitamin K_1 will bring the patient's prothrombin level back to therapeutic range within a few hours. Needless to say, treatment with long-acting anticoagulants cannot be safely undertaken when vitamin K_1 is not available.

The ideal anticoagulant is yet to be found, and one must accept the disadvantages of existing coumarins. We think that fast-acting medication is far less important in the case of hæmorrhage than conformity to elementary precautions.

*The present paper reports our experience with Marcumar from January 1956 to May 1957. Many new patients have since been treated similarly with the same constant results, although we have finally established an initial dose of 21 to 24 mg., in order to obtain an earlier hypoprothrombinæmia.

SUMMARY

The authors have described part of their experiments with Marcumar, an anticoagulant of the coumarin group. Of relatively slow action, the drug is stable and efficient. It has a slow rate of elimination. Over thousands of days of medication, the authors have noted only four minor hæmorrhagic accidents, two of which could easily have been avoided.

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TREATMENT OF HÆMOCHROMATOSIS

In hæmochromatosis iron is extensively deposited throughout the body in the form of hæmosiderin. Liver and pancreas are most affected, the next most involved organs being the thyroid, anterior pituitary and heart. These hæmosiderin deposits cause fibrosis. The main clinical manifestations of the disease are cirrhosis of the liver, diabetes, hypogonadism and cardiac failure. Prognosis is poor, death being usual after the disease has been recognized for only a few years.

The authors present a series of seven cases of hæmochromatosis treated by venesection. Blood is repeatedly removed from the patient until an anæmia is produced. This results in a depletion of the iron stores of the body (as demonstrated by liver biopsy). Venesection is then repeated about twice yearly. Patients all showed marked clinical improvement and the authors are of the opinion that this form of therapy markedly improves prognosis in patients suffering from hæmochromatosis.—P. M. McAllen, N. G. Coghill and M. Lubran: *Quart. J. Med.*, 26: 251, 1957.

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Jan. 1, 1958, vol. 78

The Canadian Medical Association Journal

published twice a month by
THE CANADIAN MEDICAL ASSOCIATION
Editor: S. S. B. GILDER, T.D., M.B., B.Sc.
Managing Editor: T. C. ROUTLEY, M.D., F.R.C.P.[C.]
Assistant Editor: M. R. DUFRESNE, M.D.
Editorial Offices: 150 ST. GEORGE ST., TORONTO
(Information regarding contributions and advertising will be found on the second page following the reading material.)

IMPAIRED DRIVING

In 1955 the Royal Canadian Mounted Police collected male volunteers, whose drinking experience varied from very light to heavy, and subjected them to driving tests involving garage work, reversing through an alley, parking and turning in a roadway. Their driving ability was tested before and after they took varying quantities of spirits (whisky, gin, rum). The alcohol concentrations in their venous blood, breath, saliva and urine were studied, and their ability to drive a car both when sober and after drinking was tested by objective methods. In addition, an experienced physician was asked to pronounce on the presence or absence of impairment of driving ability.

In view of the fact that traffic fatalities now rank as the third most dangerous killer in Canada, and that there is general agreement that alcohol consumption is a factor in at least 25% of these, scientific data on the correlation between driving impairment and the amount of alcohol consumed and on the reliability of various diagnostic tests for impairment must be welcomed.

In the present report[1] there is an enormous amount of data which requires close study by those interested. For the general reader, the results may be summarized as follows: One person showed significant impairment of driving ability when his venous blood alcohol level was only 0.36 parts per mille (p.p.m.). Five out of seven persons with alcohol levels at the time of driving not exceeding 0.50 p.p.m. also showed evidence of impairment, while a majority of those tested were unable to drive normally with a blood alcohol concentration of 0.8 p.p.m. When the level rose to 1.5 p.p.m., no less than 91% of the volunteers showed statistically significant impairment of driving ability, as measured by the number of stanchions knocked down on the course; indeed all but four of those with an alcohol level of 1.0 p.p.m. were impaired. It is of special significance to note that when the driving tests showed impairment, this impairment was not detected on medical examination by a physician unfamiliar with the person in 50% of cases and by a physician familiar with the person in 26% of cases. Hence, medical examination alone is not an infallible means of detecting impaired driving ability due to alcohol. As might be expected, there was some indication that heavy drinkers could carry alcohol concentrations below 1.5 p.p.m. better than inexperienced drinkers.

Reaction times were found to be lengthened after drinking, but these measurements are not recommended as a practical gauge; nor were there any significant changes in peripheral vision or depth perception.

On the average, breathalyzer readings underestimated the concentration of alcohol in venous blood in two out of every three determinations by about 0.05 p.p.m.; the probability of the reading overestimating the actual alcohol level was found to be no greater than with estimates of alcohol in saliva or urine. Factors of 1.2 and 1.3 respectively are suggested for conversion of saliva alcohol and urine alcohol levels to blood alcohol level.

Lastly, it is pointed out in this report that the effect of alcohol on driving performance as measured in tests of this nature is probably less than its effect on driving performance under normal traffic situations. In the experimental work, the driver is not confronted with emergencies, his speed is low, and he is concentrating on his task. Hence anyone showing impairment in these tests is likely to be even more dangerous in normal traffic conditions than the tests would indicate. Further research is needed on (a) the effect of beer on driving performance and on the relation of beer drinking to alcohol levels in blood, saliva, breath and urine; (b) the effect of beer and spirits on the driving performance of young persons under 25 years of age; (c) the effects on driving performance of women; (d) the development of a uniform national system of accident reporting to evaluate correctly the relationship between alcohol and traffic accidents.

REFERENCE

1. Report on Impaired Driving Tests. Issued from the Crime Detection Laboratory, Royal Canadian Mounted Police, Ottawa. Copies are obtainable from the Queen's Printer, Ottawa, at a cost of $3.00 each.

Editorial Comments

BEHÇET'S SYNDROME—OR DISEASE?

Behçet's syndrome is one of those rather rare conditions, characterized by a triad of clinical findings—in this case, oral and genital ulceration with relapsing iritis. It has been known for the past 20 years, and during that period has accumulated a number of associated clinical findings that threaten to remove it from the category of syndrome to that of disease.

The main lesions consist of iridocyclitis with hypopyon, and multiple ulcers of the mouth and male and female external genitalia. The disease is extremely chronic, and the lesions may come

and go for a number of years. The subsidiary lesions include cutaneous manifestations resembling erythema nodosum or erythema multiforme, monarticular arthritis with or without effusion, cellulitis, thrombophlebitis,[1] and involvement of the central nervous system.[2, 3]

The presumed rarity of this condition is the result of its apparent preference for the Eastern Mediterranean basin, but it now appears to be spreading westward, and cases are sporadically being reported in the British Isles. It would appear that the characteristic chronicity and relative benignity exhibited in the past rudely disappear when the central nervous system becomes involved, and five such cases have recently been described,[2, 3] in 4 of which early death occurred. Clinically the findings were those of patchy non-systemic nervous tissue involvement as well as those of meningitis, while histologically the lesions were also non-specific, consisting of perivascular cuffing, intravascular thrombosis with infarction, cerebral softening and microglial proliferation. Clinically there is a superficial resemblance to multiple sclerosis, but it is not a demyelinating disease, and the cutaneous, ocular and genital involvement simplifies the differential diagnosis. There is a distinct resemblance between this condition, Reiter's disease, Stevens-Johnson syndrome, and various other muco-cutaneous syndromes, and a more than faint suspicion that they may be in some way related. It is therefore of extreme interest that recent workers, in common with earlier ones, have established a viral causation for Behçet's syndrome. This had previously been suspected on indirect evidence, but a virus was actually grown from fluid from the anterior chamber of the eye in one of the more recent reports. It is now suggested that the ocular and muco-cutaneous lesions are the result of actual viral invasion of these tissues, while the nervous lesions are "allergic" in origin. However, a neurotrophic modification of an original muco-cutaneous invader has not yet been dismissed as a possible cause of the widespread nervous lesions noted in many cases.

In perhaps 25% of cases, cellulitis and thrombophlebitis[1] are outstanding features. These appear to follow minor local trauma, and to some workers they suggest "non-specific" tissue sensitivity while to others they indicate local viral invasion.

As is to be suspected, both antimicrobial and hormonal therapy have received trials. In some cases, improvement followed aureomycin, while in others corticotropin appeared to be helpful. However, in view of the characteristic relapsing nature of the disease, actual benefit from these preparations could not be identified with any degree of certainty.

Certain observations nevertheless suggest themselves from recent published material. Firstly, the condition is not so excessively rare as previously considered. Secondly, because of the increasing adeptness of virologists in the discovering, growing and general handling of viruses, we can probably expect a great increase in our fund of information on this subject in the not-too-distant future. And finally, since the usual requirements for such terminology are well on the way to being met, one may well suggest that the term "Behçet's disease" rather than "syndrome" be applied in the future.

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DUODENAL AND JEJUNAL BIOPSIES

Despite the significant advances made in recent years in the roentgenography and endoscopy of the gastro-intestinal tract, there are persistent hiatuses in our knowledge and in our diagnostic capabilities in diseases of this system. For many years, the sigmoidoscope has enabled us to visualize the last few inches of the sigmoid and rectum and to examine biopsy material from this region. The use of the flexible gastroscope has enabled us to visualize much (but not all) of the gastric mucosa, but biopsy has been difficult. The intermediate stretch of the gastro-intestinal tract has been unapproachable for visualization except by roentgenography, and completely unapproachable for biopsy.

It is with some interest and satisfaction, therefore, that one encounters a terse and business-like description[1, 2] of an instrument that has proved eminently satisfactory for the taking of duodenal and jejunal biopsies, and can be used for gastric biopsies as well.

Basically, this instrument consists of a hollow flexible metal cable somewhat like those used in the push-button gear-changers of modern automobiles, with a hole just above the distal end; an inflatable rubber balloon attached to that end to aid in the passage of the instrument; a knife-blade in the lower end of the hollow cable, which can be moved up and down past the hole by its attachment to a rather stiff wire which runs through the hollow cable; and a lateral "exhaust tube" connected to the cable and attached to a mercury manometer.

The instrument is passed under fluoroscopic control aided by inflation of the balloon. When the desired site has been reached, negative pressure (controlled by the manometer) is applied, which pulls a piece of mucosa into the hollow cable through the hole near the tip. The inner wire attached to the knife-blade is then moved up and down; thereby slicing off a piece of mucosa, which can then be fixed and examined microscopically.

The author describes a relatively large number of successful biopsies and indicates that, in 67 attempted biopsies, no complications occurred. However, it can be readily understood (and the author so admits) that hæmorrhage and perforation are theoretical complications.

Although the instrument is modestly described as a research tool only, it can be readily appreciated that, when perfected, it will have great possibilities.

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It is the present preoccupation of the inventor to obtain a series of "normal" biopsy specimens, without autolysis, to act as a reference point for future study. This, one will readily agree, is surely needed.

From the standpoint of the actual biopsy material in this series one was intensely interested to note that, in a case of tuberculous "peritonitis", examination of the duodenal superficial mucosa revealed "a heavy inflammatory infiltration with lymphocyte and plasma cells". Perhaps, as time goes on we may find that the peritoneum, like its pleural counterpart, is almost never the seat of primary disease, but only the mirror of subjacent abnormalities.

Brevity, terseness and the absence of verbal embellishments make these papers a delight to read.

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THE GENERAL PHYSICIAN'S ROLE IN AIR TRAVEL

With the tremendous upsurge in the popularity of air travel in recent years, it has become increasingly important to assess the suitability of some prospective passengers for this form of transportation. Spiegel[1] points out that some airlines retain specially trained physicians to make this assessment; but, by and large, the prospective passenger and frequently the airline physician himself are prone to turn to the family physician for reassurance as to a person's ability to fly. It is the duty of the general physician, therefore, to make himself more familiar with at least the fundamentals of the subject.

The principles under which modern passenger airlines operate are safety, operating efficiency and passenger comfort. Prospective passengers should be assured that air travel is safe. The headlines about air crashes are remembered, while the millions of air-miles travelled without mishap are conveniently forgotten. Passengers should also be reassured that airline staffs are kept at peak efficiency, and that it is to the carriers' advantage to see that this is the case. Passenger-comfort is ensured by pressurization, and at least theoretically aided by "acoustic sealing". It must be admitted that in reciprocating-engine four-motor aircraft, the problem of noise has not been completely solved.

Three basic principles are evoked in determining a prospective airline passenger's fitness to fly. Firstly, there must be no interference with the supply of oxygen to the lungs. Secondly, the mechanical expansion of gases must be unobstructed. And finally, there must be no untoward effect on the sensibilities or the welfare of the other passengers.

Perhaps the most common problem along these lines arises in connection with individuals who have recently recovered from a myocardial infarction or cardiac failure, or who have a history of valvular heart disease, coronary insufficiency or severe anæmia. In such cases, it may be confidently stated that if the aircraft flies below 8000 feet, there is no contraindication, but that if the flight-plan calls for elevations higher than 8000-10,000 feet, the cabins must be pressurized. The cabins of most commercial aircraft are pressurized.

It is less commonly appreciated that intestinal gases expand 50-100% at altitudes of 10,000-18,000 feet. In patients who have recently had bowel operations, intestinal sutures could conceivably give way if, as the result of some unforeseen circumstance, cabin pressurization should fail.

Although artificial pneumothorax is now performed much less commonly than in the past, it should perhaps be mentioned that no patient should have a pneumothorax refill within 10 days before flying.

Patients with malodorous or disfiguring conditions may legally be turned away by airlines if facilities for their isolation are not available.

The frequency of the epileptic convulsions in susceptible individuals is increased by air travel. Diabetics should be enjoined to carry their insulin and syringe with their hand-baggage. It should be understood that patients with communicable diseases can be deplaned anywhere along the route, and will most certainly not be allowed to enter foreign countries by plane. On the other hand, it is recognized that pregnancy is not an illness but a physiological condition, and most airlines allow travel by pregnant women at any stage, while others restrict such travel to the first eight months.

Physicians who are frequently consulted about such matters are well advised to procure special texts dealing with the medical aspects of commercial air travel. S.J.S.

REFERENCE

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NATIONAL HEALTH WEEK

Our affiliated association, the Health League of Canada, draws our attention to the fact that Canada's 14th National Health Week will be held in the week of February 2-8, and that the League wishes once more to have the support of the medical profession in bringing to the notice of communities and individuals the continuing need for a positive approach to health. It may be wondered whether such activity is necessary any longer in a comparatively well-developed and prosperous nation like Canada. The Health League, however, points out several reasons for continuing intensive health education; thus, Canada still ranks eleventh among the nations in terms of infant mortality, and over 50% of the beds occupied by sick persons at any one time in Canada are occupied by persons who have suffered a breakdown in mental health. Other areas in which the Health League takes an interest and in which there is need for community action are accident prevention, dental disease and the prophylaxis and management of disorders in the elderly.

Medical News in brief

THE VALSAVA TEST IN BEDSIDE DIAGNOSIS OF DYSPNŒA

The Valsalva test was performed by Ard and Twining (*Am. J. M. Sc.*, 234, 403, 1957) on 60 patients with various types of pulmonary and cardiac disease. This simple objective test provided reliable information as to the presence of varying degrees of pulmonary congestion resulting from cardiac dysfunction, since in the majority of positive cases the dyspnœa was subsequently proved to be due to cardiac failure as judged by response to digitalization, decrease in heart size, diuresis and disappearance or diminution of clinical signs and symptoms. In the patient without cardiac disease, there is a four-phase response to the Valsalva manœuvre: (1) a sharp rise in blood pressure; (2) a gradual fall in blood pressure; (3) a further sharp fall in blood pressure when normal breathing is resumed; (4) a sharp rise in blood pressure (overshoot), followed by bradycardia.

The Valsalva test, as here described, was felt to be specially useful in demonstrating incipient cardiac failure in complicated and borderline cases where clinical evaluation and ancillary aids such as circulation time, response to diuresis and vital capacity were equivocal or of no value. A negative Valsalva test always indicated that the patient's dyspnœa was due to pulmonary disease rather than cardiac failure.

Since the Valsalva test requires only minimal equipment, can be readily learned and utilized also by nurses or intelligent office personnel, and is more reliable yet less time-consuming than other techniques commonly used to evaluate cardiac and pulmonary function, it is suggested that this test be more widely employed in the differential diagnosis of dyspnœa. Because of its simplicity, the Valsalva test is of particular value to the practising physician for use at the bedside.

MAMMARY ARTERY IMPLANTATION FOR ANGINA

In this Journal in 1951, Vineberg and Miller reported early experience with implantation of the internal mammary artery into the heart in cases of angina pectoris. Recently Vineberg and Walker (*Am. Heart J.*, 54: 851, 1957) have reported results in a series of 88 cases with a follow-up of six months to six years. In cases with no angina at rest the mortality rate was low, 5.6%, and the results were excellent. With angina decubitus, nine patients out of 20 died. Of the 68 patients with no angina at rest, 49 were totally disabled before internal mammary artery implantation; of this group 54 returned to work after operation and 53 were either free of pain or had slight pain. All of the 20 patients suffering from angina decubitus were disabled, but after operation seven claimed to have no pain, or less or slight pain. Optimum beneficial effects were apparently obtained in patients who had suffered on an average for 33 months, and excellent results have been obtained up to 55 months.

TETANUS IN RUSSIA

Epidemiological statistics are difficult to obtain from the Soviet Union, but a recent article from a Soviet Epidemiological Institute gives some figures for tetanus in a rural area (Krasnodar). These show a fairly high incidence of tetanus, since during the last few years the average incidence has amounted to seven cases per 100,000 population with an average of three deaths. The highest incidence of the disease was in children aged 7 to 14 years. The portal of entrance was usually some mild injury on the leg. Treatment was usually by antitetanus serum intravenously and intramuscularly to a total dose of 150,000-200,000 units; in addition chloral hydrate and magnesium sulfate were administered. The mortality rate has varied during the last 10 years between 30 and 40%. A plea is made in the article for active immunization of all members of collective farms, workers at tractor stations and children and housewives in the area.—Matviev *et al.*, *Khirurgiia*, 80: No. 9, 1957.

PROCAINE BLOCK IN FROSTBITE

In a surgical clinic in Moscow, 96 severe cases of frostbite have been treated since 1953; in 44 cases the frostbite was of fourth degree, in 23 of third degree and in 28 of second degree. Three lines of treatment were used: (1) intra-arterial injection of a 1% solution of procaine 10-20 c.c. with or without penicillin, depending on the degree of development of infection; (2) the removal of blisters and dressing with an antibiotic (Biomycin) and sterile petrolatum; (3) anticoagulant treatment (dicoumarol) in frostbite of third and fourth degree. The use of procaine in the early stages was thought to reduce pain in the period of healing, improve circulation and reduce inflammation, and limit areas of necrosis.—Korneev, *Khirurgiia*, 30: No. 9, 1957.

EXPECTORANTS AND SPUTUM VISCOSITY

Many generations of practitioners have prescribed such expectorants as ammonium salts, ipecacuanha and potassium iodide in the belief that these expectorants made the sputum less viscid. Forbes and Wise (*Lancet*, 2: 767, 1957) studied sputum viscosity before and after the administration of these expectorants and also before and after inhalation of steam, 5% carbon dioxide and oxygen, an aerosol detergent, and aerosol proteolytic enzymes. No support could be found for the belief that the currently available expectorants when administered in the usual intermittent manner effectively altered sputum viscosity, although such lowering has been demonstrated elsewhere *in vitro*. The other treatments were no more successful. The authors say, "It is odd that medicaments whose therapeutic value is supported by so little objective evidence continue to be so popular with both doctors and patients."

(Continued on advertising page 48)

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MEDICAL FILMS

CONTINUING the listing of available films on medical and related subjects, we list below additional films. These films are held in the National Medical and Biological Film Library and are distributed by the Canadian Film Institute, 142 Sparks Street, Ottawa, Ontario. The evaluations have been prepared by Canadian specialists in the subjects of the films, under the Medical Committee of the Scientific Division of the Canadian Film Institute, which is headed by Dr. G. H. Ettinger.

ANATOMY

The Development of the Gastro-Intestinal Tract: Part I (1947) Silent, Colour, 66 minutes.

Produced by Joseph J. McDonald, M.D., as a research project under the auspices of the Department of Surgery, Columbia University Presbyterian Medical Center, New York. Technical Advisers: Drs. L. B. Arey, Northwestern University, and G. L. Steeter, G. W. Corner and C. H. Heuser, Carnegie Institution of Embryology (and others).

Description.—This is an instructional film showing the normal development of the human gastro-intestinal tract. Coloured animated drawings, beginning with the earliest stages when the primitive endoderm is first recognizable as a few cells on the deep surface of the embryonic cell mass of free blastocyst, trace the embryological growth of the gastro-intestinal tract through the period of implantation and placentation, showing in detail early formation of foregut, midgut and hindgut. After six weeks, animated development is correlated with dissections of embryos photographed in colour under magnification, showing: formation of liver, bile ducts and pancreas; rotation of stomach, duodenum and intestines; fusion of mesenteries; development of omentum.

Appraisal (1947).—Employment of colour animation along with human embryological material not easily available except in large medical centres makes this a most excellent film and one essential to proper teaching of this aspect of embryology. Animated drawings of early developmental stages are particularly good and reflect excellence and accuracy of work of the Carnegie Institution. Use of fresh embryological material correlates magnificently the theoretical aspects of the problem with the practical realities of surgery dealt with in part II of the film. Recommended for medical students in pre-clinical years and for specialists in the subject. *Unsuitable for non-medical audiences.*

Availability.—National Medical and Biological Film Library ($8.00). Purchase from Columbia University Educational Films, 1145 Amsterdam Avenue, New York 27, N.Y.

The Development of the Gastro-Intestinal Tract: Part II (1947) Silent, Colour, 22 minutes.

Produced by Joseph J. McDonald, M.D., as a research project under the auspices of the Department of Surgery, Columbia University Presbyterian Medical Center, New York. Technical Advisers: Drs. L. B. Arey, Northwestern University, and G. L. Steeter, G. W. Corner and C. H. Heuser, Carnegie Institution of Embryology (and others).

Description.—Part II of this instructional film shows the most important anomalies of the human gastro-intestinal tract dealt with in surgery. A group of surgically important anomalies are presented, with preoperative and operative findings shown and explained by animated drawings as well as by autopsy findings in some cases. Included are examples of small bowel stenosis and atresia, duplication of ileum, omphalocele, Meckel's diverticulum, volvulus, imperforate anus, rectovesical fistula, and malrotation of intestines.

Appraisal (1947).—Taken as a sequel to Part I of this film, this inclusion of surgical aspects enhances the clinical importance of the subject. The same comments as to over-all excellence of the film apply here as to Part I, and the film is recommended for the same groups. *Unsuitable for non-medical audiences.*

Availability.—National Medical and Biological Film Library ($3.00). Purchase from Columbia University Educational Films, 1145 Amsterdam Avenue, New York 27, N.Y.

The Anatomy of the Perineum (1947) Silent, Colour, 31 minutes.

Produced by Daniel P. Quiring, Ph.D., and Earl L. Lewis, M.Sc., Department of Anatomy, the Cleveland Clinic, Cleveland, Ohio.

Description.—An instructional film, illustrating the structures in the floor of the male pelvis, and their relations. Throughout, the film employs colour motion picture photography of dissections on fresh male cadavers, supplemented by diagrams, animation and anatomical models. In the dissections, main vessels and nerves are coloured for easy visualization. Diagrams show the internal relations of the structures encountered. Subtitles describe succeeding visuals throughout. In one instance an animated diagram illustrates the extravasation of urine, from a rupture of the urethra, into the anterior abdominal wall.

Appraisal (1949).—As a whole, this film is quite useful, in particular as an introduction before the dissection of the area is taken up by the students themselves. The main structures are clearly shown and explained; however, the perineal membrane is incompletely dealt with and the bulbo urethral glands are not seen. It might be advisable for the lecturer to correct some minor errors—e.g. with respect to the borderline between the urogenital triangle and the anal triangle. Nomenclature used is not uniform—both B. N. A. and Birmingham Revision are used. Recommended for medical students; suitable for postgraduate groups as a review film. *Unsuitable for non-medical audiences.*

Availability.—National Medical and Biological Film Library ($4.00). For purchase apply to Dr. Daniel P. Quiring, Department of Anatomy, The Cleveland Clinic, Euclid Avenue at East 93rd Street, Cleveland 6, Ohio.

The Control of Small Blood Vessels (1951) Silent, B & W, 20 minutes.

Produced by Drs. George P. Fulton and Brenton R. Lutz, Department of Biology, Boston University.

Description.—This record-instructional film illustrates the control, by nervous means, of the flow of blood through minute blood vessels. It consists of a photomicrographic record of the responses of the small blood vessels of the tongue of the frog, *Rana pipiens,* to stimulation of small nerves with a micro-electrode. The arrangement of blood vessels and skeletal muscle fibres in the living retrolingual membrane is shown, and the structure of arterioles, precapillaries and capillaries is indicated in preparations differentially stained with methylene blue. The remaining 13 scenes show the activity of the contractile elements of the blood vessels when small nerves in the same field are stimulated with a micro-electrode or when spontaneous activity occurs.

Appraisal (1957).—The film is recommended for medical students in the pre-clinical years and is excellent if used merely as a means of demonstrating vasoconstriction of minute vessels and consequent alterations in blood flow through a tissue. If it is to be used to show all the details of nerve fibre, arteriole and precapillary, etc., the time allowed for reading subtitles is insufficient even for trained audiences and the film must be run several times; when this is done, however, it becomes apparent the film is well organized. Photography of the earlier, most static part of the film is not too good, but that of the latter, more dynamic part is excellent. Suitable for any interested medical group and for classes in zoophysiology.

Availability.—National Medical and Biological Film Library ($2.30). For purchase apply to Dr. Brenton R. Lutz, Department of Biology, Boston University, 688 Boylston Street, Boston 16, Mass.

(To be continued)

GENERAL PRACTICE

DEAFNESS IN CHILDREN*

JACK A. RUBIN, M.D., M.Sc.,†
Winnipeg, Man.

IN A PREVIOUS REPORT[1] deafness in pre-school children was discussed with regard to early diagnosis and treatment. An etiological classification was given and the steps in making a diagnosis of deafness were mentioned. The newer diagnostic audiometric procedures were outlined.

This report will deal with 100 consecutive children seen at the Hard of Hearing Clinic from December 1954 to August 1956, and a statistical review will be made with special emphasis on etiology of deafness, type and degree of deafness, and treatment recommended.

1. *Incidence:* There were 58 males and 42 females.

Age of child when first seen at the Clinic

0 - 2 years (infants)	1
3 - 5 years (pre-school)	10
6 - 12 years (school)	71
over 12 years	18
	100

The youngest patient was two years old, the oldest patient 16 years old.

Age of child at onset of deafness

0 - 2 years	48
3 - 5 years	22
6 - 12 years	28
over 12 years	2
	100

These figures reveal an unfortunate finding. The vast majority of children with hearing difficulty were not seen in the clinic until they had reached school age. Many had been attending public school for from 1 to 11 years with varying degrees of deafness before their visit to the clinic. On the other hand, in the majority of children the onset of hearing difficulty began in the pre-school period, mainly before the age of two years.

2. *Etiology of Deafness.*

I. *Prenatal causes*	*No. cases*
1. Hereditary (familial)	2
2. Otosclerosis	1
3. Syphilis	?
4. Malformation of auditory mechanism	1
5. Viral infection 1st trimester pregnancy (rubella)	1
6. Erythroblastosis fetalis	2
7. Birth trauma (cerebral damage)	4
	11

II. *Postnatal causes*	*No. cases*
1. Infections—	
(a) otitis media, secondary, upper respiratory infection	40
(b) otitis media associated with cleft palate	4
(c) eustachian tube lesion and upper respiratory infection without otitis media	16
(d) childhood infectious diseases associated with:	
(i) otitis media (scarlet fever 4; measles 3; chicken pox 2)	9
(ii) labyrinthitis (measles 1)	1
(iii) encephalitis (chickenpox 2; whooping cough 2; measles 1)	5
(e) meningitis (meningococcal)	2
(f) encephalitis (pneumonia)	1
2. Trauma (skull fracture)	2
3. Cerumen	1
4. Psychosis (functional)	2
5. Foreign bodies	1
6. Normal hearing	3
7. Unknown	2
	89

The findings correspond with those from various other centres in that cases with postnatal causes are in a ratio of about 9:1 to those with prenatal causes. The majority of hearing defects are in the otitis media group, which directly accounts for just over 50% of all deafness.

An illustration of just how inherent familial hereditary deafness can be, is shown by the following cases:

CASE 12.—Mother and father—born deaf mutes, all children—two male (5 and 9 years) and one female (14 years)—all born deaf mutes.

CASE 28.—Mother—born deaf mute. Father—became deaf at three years of age after severe otitis media. Mother's four brothers and one sister—all born deaf mutes. Both children—one male and one female—born deaf mutes.

3. *Type of Deafness.*

	No. cases
1. Conductive deafness	53
2. Nerve (perceptive)	19
3. Mixed deafness	25
4. Normal hearing	3
	100

Any lesion involving the auditory mechanism from the external ear up to and including the oval window will cause a *conductive* type of deafness. Lesions from the end organ of hearing (i.e. the organ of Corti in the labyrinth) along the auditory nerve pathways or central nuclei and tracts including the auditory centre in the temporal lobe of the brain will produce a *nerve* type of deafness. Lesions which affect both the conductive and nerve pathways of hearing will cause a *mixed* deafness. As indicated earlier, otitis media is the major cause of deafness; it therefore follows that conductive deafness will be the predominant type found.

The type of deafness present is important as regards treatment and prognosis. The conductive type is often reversible and more easily treated, and the prognosis is therefore better than in nerve deafness, which is usually permanent.

*A review of 100 consecutive cases seen at the Hard of Hearing Clinic, Winnipeg Children's Hospital, from December 1954 to August 1956.

†From the Department of Otolaryngology, University of Manitoba, and the Winnipeg Children's Hospital.

4. *Degree of Deafness when Child First Seen.* (Audiometric findings.)

	No. cases
1. Early 0 - 15 decibel loss	15
2. Moderate 15 - 30 decibel loss	25
3. Moderate advanced 30 - 50 decibel loss	25
4. Markedly advanced 50 - 80 decibel loss	24
5. Totally deaf 80 - 100 decibel loss	11
	100

The findings here indicate that the hard-of-hearing child is not being seen early enough. Too many children have advanced deafness when seen for the first time. This is partly the doctor's fault as well as the parents'. If all children recovering from otitis media were checked audiometrically and any hearing defect corrected at once, the incidence of deafness after this condition would be greatly reduced. Antibiotics usually check the infection and cause the acute symptoms to subside. However, fluid accumulation with resulting adhesions and scarring in the middle ear can and does result in spite of these drugs. The truth is that while mastoiditis is seen rarely today following otitis media the incidence of deafness after ear infections is increasing. It is the duty of the doctor not only to treat the infection but to make certain that the hearing returns to its normal state.

Parents often attribute lack of auditory response in a child to "inattention", "day-dreaming" or temper tantrum. Routine school hearing testing during elementary schooling is valuable in picking up many hearing problems in this category.

5. *Relation of Tonsils and Adenoids to Hearing.*

	No. cases
1. Normal tonsils and adenoids	29
2. Absent tonsils and adenoids (removed)	37
3. Producing symptoms—Hypertrophic (obstruction)	
—Infective	34
	100

Tonsils and adenoids may cause deafness by two different methods. Firstly, hypertrophic lymphoid tissue (adenoids) may block the eustachian tubes, causing faulty drainage and ventilation of the middle ear cavity; and, secondly, recurrent tonsillitis may initiate or predispose to otitis media. In 34 children removal of tonsils and adenoids was advised because of one or both of the above reasons. In all children who had this operation (34), the incidence of otitis media was reduced and the hearing improved to some degree. It must be emphasized that the operation should be done only if the proper indications are present.

6. *The Effect of Antibiotics in Suppurative Otitis Media.*

Haphazard choice and inadequate dosage of antibiotics in otitis media are to be condemned. Ear swabs taken for culture and sensitivity show the development of resistant strains of the common ear pathogens. The following information was noted after taking ear swabs from patients with a discharging ear:

Organism present	*Effective drug (i.e., organisms sensitive to antibiotic)*
Staphylococcus aureus coagulase-positive (60%)	Chloramphenicol..75% of cases
B. pyocyaneus (30%)	Erythromycin.....50% of cases
Friedländer's bacillus.... (5%)	Tetracycline and aureomycin.....25% of cases
Beta haemolytic streptococcus..... (5%)	Penicillin and Terramycin....15% of cases

In most cases the organism was sensitive to only one antibiotic and resistant to the remaining drugs. Chloramphenicol was found to be effective in 75% of cases, while erythromycin was effective in 50% of cases.

Antibiotics will usually cause the acute symptoms to subside in 24-48 hours. In cases where the antibiotic was given for too short a period, fluid accumulation with subsequent adhesions and scarring resulted in adhesive otitis media with associated hearing loss. It was concluded that antibiotics should be given for a minimum of 4-5 days even in the absence of acute symptoms, so as to lessen the tendency to adhesive changes in the middle ear. The usually good response of acute otitis media to antibiotics should not lull the doctor into believing that all is well after the acute symptoms subside. Residual deafness may result and be overlooked in a young child if careful examination is not done and hearing function is not tested.

7. *Treatment Recommended.*

Treatment was placed in three categories: non-surgical treatment; surgical treatment; and rehabilitation of speech and hearing.

(1) *Non-surgical treatment.* — Therapy had mainly to do with the treatment of ear infections, sinus and nasal disease, and eustachian tube lesions. Appropriate and specific antibiotics were prescribed in proper dosage in all indicated cases after culture for organisms and sensitivity tests were done.

The function of the eustachian tubes, to drain the middle ear cavity and to provide proper ventilation of the tympanic cavity in normal and diseased ears, is not fully appreciated by many. Blockage of the eustachian tube predisposes to otitis media; conversely, an otitis media will not subside completely without a properly functioning eustachian tube. Therefore, various procedures should be employed in ensuring normal function of the eustachian tubes in ear disease. Nasal mucosal shrinkage together with reduction of swelling about the eustachian orifices can be accomplished by various nasal vasoconstrictors, used as nose drops or sprays. Pollitzerization and/or tubal inflation will drain and open the eustachian tube in resistant cases. In some cases the eustachian tube does not open properly in spite of all measures (i.e. medication and adenoidectomy). In these patients there is hypertrophic lymphoid tissue in the orifice or walls of the eustachian tube which cannot be removed surgically. Radiation therapy is then employed to shrink the excess lymphoid tissue. We have been using deep x-ray in doses

of 200-300 r to each eustachian orifice for several minutes for 4-5 treatments. This technique has been used on six patients, in all of whom hearing has been subjectively and objectively improved.

Four patients with active sinusitis were treated with sinus washings and specific antibiotics. Any allergic state present necessitates anti-allergic therapy.

(2) *Surgical treatment.* – Tonsillectomy and adenoidectomy was indicated and done in 31 cases and adenoidectomy alone in three cases. Indications in these 34 patients were blockage to the eustachian tube with or without otitis media or recurrent tonsillitis associated with ear disease and hearing loss.

A mastoidectomy was done in one patient with advanced chronic otitis media associated with polypi, granulations and cholesteatoma. Reconstruction of the external auditory canal is planned for the patient with congenital atresia of the ear canals.

Aspiration of middle ear fluid was not necessary in this series but is mentioned as one method to prevent adhesive changes in the tympanic cavity from fluid accumulation after otitis media.

Myringotomy to drain an acute otitis media with bulging ear drums was not indicated in any of our cases.

(3) *Rehabilitation of speech and hearing.*– All patients with nerve deafness and advanced conductive deafness required some form of rehabilitation. Speech is the imitation of the spoken voice. Infants with advanced deafness either do not learn to talk or, if they do, there is usually a speech defect. It follows therefore that hearing rehabilitation or training must be combined with speech rehabilitation. Many children considered totally deaf have some residual hearing and the child responds eagerly to amplified sound, i.e. the use of a hearing aid. Fifteen of our patients were fitted with hearing aids. Approximately 20 children were receiving speech and hearing training either from a day school for deaf children or from Miss A. Shirtliff, our audiologist and speech therapist. The totally deaf child who does not respond to any form of auditory stimulation is better in a full-time school for deaf.

CONCLUSIONS

One hundred consecutive patients seen at the Hard of Hearing Clinic, Children's Hospital, from December 1954 to August 1956, are reviewed.

In the majority of patients the onset of hearing loss was in the pre-school years but the children were not seen in the Hard of Hearing Clinic until they had been in school from one to 11 years.

Postnatal causes of deafness outnumber the prenatal group in the ratio of 9:1. Otitis media is the major cause of deafness. Conductive deafness is the main type found.

The prenatal conditions causing deafness usually produce a nerve or perceptive type of hearing loss.

Children recovering from otitis media should be checked for any evidence of deafness.

Tonsillectomy and adenoidectomy must be considered in all cases of recurrent otitis media with conductive deafness. The adenoids should be removed under direct vision to ensure a thorough removal.

Otitis media must be treated with specific antibiotics and for a proper length of time. This necessitates ear swabs for organisms and sensitivity.

Radiation to the nasopharynx is indicated to shrink down lymphoid tissue around and in the eustachian orifices in children with blocked eustachian tubes in spite of tonsillectomy and adenoidectomy.

Speech and hearing rehabilitation, with the use of hearing aids in indicated cases, can do much to restore a deafened child to a more normal life.

The author wishes to acknowledge the help of Dr. I. H. Beckman, Dr. W. Grant and Miss A. Shirtliff (audiologist and speech therapist), Winnipeg Children's Hospital.

REFERENCE

1. RUBIN, J. A. AND BECKMAN, I. H.: *Manitoba M. Rev.*, 36: 84, 1956.

OBSTETRICS AT COOK COUNTY HOSPITAL*

ROBERT E. HELGASON, M.D.,
Glenboro, Manitoba

AS RECIPIENT of the award for postgraduate education to rural general practitioners I chose to attend the two-week course in general and operative obstetrics at the Cook County Graduate School of Medicine in Chicago. The teaching staff for the course was excellent and stressed the practical as well as the scientific aspect of obstetrics. During the two weeks they endeavoured to bring us up to date on all the common obstetrical problems and emergencies encountered in everyday practice. In addition they taught us new techniques and skills in diagnosis, management and treatment. The course was divided into lectures, demonstrations and management of cases.

In discussing the course, I will divide it into three main sections: prenatal care, management of labour, and postnatal care. As regards management and treatment, the large number of cases handled, the serious overcrowding of the hospital and the condition of the patients must be remembered.

For the year 1957, Cook County Hospital expected the delivery of 15,000 to 18,000 babies at the rate of approximately 50 babies per day. The wards and case rooms were open to postgraduate students 24 hours a day, so that with any luck

*Based on a report to the College of General Practice of Canada.

and stamina one could practically see an obstetrics textbook pass in review during the course. It was not unusual to view about 10 births almost in sequence and to pass 30 to 40 mothers in labour, side by side, in one of the wide halls which serve as temporary labour rooms because of the extremely overcrowded conditions. Ninety per cent of the patients were coloured people, many of whom were poorly nourished, anæmic and fearful.

Prenatal clinics are held five days a week in a building separate from the hospital. The regular Cook County patients receive adequate prenatal care; some patients receive prenatal care at charity clinics in Chicago and vicinity but a large proportion have no care. One morning a week is devoted to dystocia clinics where all mothers with contracted pelvis, a history of difficult labour or of Cæsarean section, etc., are brought for careful consideration by the staff and residents; patients from outside clinics also come to the Cook County clinic about one month before term for assessment.

In borderline or contracted pelves, a certain amount of importance is attached to measurement of the diagonal and true conjugates, the bi-spinous diameter and the bi-ischial diameter. In measuring the outlet in doubtful cases a Thoms pelvimeter is used. This instrument has a bar 9.25 cm. wide which is placed as far forward between the pubic rami as it will fit and enables one to measure the functional posterior sagittal plane. According to Thoms' modification of Klein's rule. the functional posterior sagittal combined with the bi-ischial diameter should equal more than 15 cm. Vaginal examinations are performed wherever indicated during the last month of pregnancy and in the early stages of labour. Fara, on a large series of cases, claims that the morbidity rate when vaginal examinations were done in labour was no greater than with rectal examinations. He found that vaginal examination had numerous advantages and eliminated a considerable number of errors. However, vaginal examinations have not become routine except in cases where difficulty is expected. The Hillis manœuvre is used as an aid in borderline pelves to determine whether a trial of labour should be allowed. X-ray pelvimetry is used only on questionable cases and is considered in conjunction with the other findings.

In following the progress of pregnancy the McDonald method of measuring the height of the fundus is used. This method was adopted because it was easy to perform at home, office or hospital. Every staff member and intern carries a tape measure in his pocket. A fundal height of 35 cm. is considered as full term, and all cases where the fundus rises higher than 38 cm. are carefully checked for multiple pregnancy, abnormal fetus, polyhydramnios, or dystocia.

A staff member remarked that the women in labour at Cook County Hospital are in general the most frightened in the world, and one is inclined to agree with him. For sedation in labour the routine was Phenergan 50 mg. and Demerol 50 to 100 mg. intramuscularly. In a precipitate labour or an emergency the Demerol was given intravenously. In place of Phenergan a few used one of the tranquillizers, notably Sparine and Atarax. No gas or general anæsthetic is used during labour or at delivery.

Immediately a patient is admitted, she is examined to make certain that she is in labour. After the examination, in normal labours, an intravenous infusion of 1000 c.c. of 5% glucose in distilled water or saline containing 10 minims of Pitocin is started. The main exceptions are cases of previous Cæsarean section or severe toxæmia and cases where constriction rings are felt. The rate of flow is carefully adjusted by the intern according to the strength and frequency of uterine contractions. The patients receive neither solids nor liquids by mouth once labour is established. This is routine so that anæsthesia for Cæsarean section or operative intervention can be induced safely at any time.

Rectal examinations are carried out regularly and the results are expressed in centimetres. To train nurses and interns in accurately estimating the dilatation of the cervix, a board has been placed in the ward with openings expressed in centimetres. Ten centimetres is considered to be a fully dilated cervix. Whenever any doubt exists as to progress and position, a vaginal examination is carried out using sterile gloves.

We had several lectures from Dr. Fields on the physiology of labour. He stressed the fact that clinical evaluation of the lower uterine segment has been overlooked. Before physiological labour can proceed, there must be formation of the lower uterine segment and then effacement of the cervix. Sometimes this formation of the lower segment and cervical effacement is quite painful, but it is not true labour and one should not be misled by these preparatory contractions. True labour then is the progressive dilatation of the cervix. A trial of labour is defined as a minimum of 18 hours and a maximum of 30 hours of true labour, a test of labour as two hours in the second stage, that is after the cervix is fully dilated and retracted.

Because of the shortage of case rooms, mothers are not brought into the delivery room until shortly before the expected time of confinement. Every patient has a pudendal nerve block, usually by Kobach's transvaginal method. This is performed using a six-inch 20-gauge needle to inject 15 c.c. of a 1% procaine solution containing hyaluronidase and epinephrine above and behind each ischial spine along the course of the pudendal nerve. The technique is described fully in the May 1956 issue of the *American Journal of Obstetrics and Gynecology*. The addition of the hyaluronidase appears to shorten the interval between the nerve block and resultant anæsthesia, and to allow a better spread of the anæsthesia with no distension of the tissue in the operative field. The resultant anæsthesia involves the lower vagina, vulva, perineum and anus. Pudendal nerve block is considered adequate for low forceps and most cases of mid forceps. The bearing-down pain appears to be relieved in most cases.

Episiotomy is routine in every case and is performed before there is any stretching of the perineum, to avoid damage to the muscles of the pelvic floor. Episiotomies tend to be made larger and more adequate. In repair three layers of sutures—muscle, fascia and skin—are inserted, with careful reconstruction of the fourchette.

Indications for low forceps are about the same as in Manitoba. Any case requiring high forceps has a Cæsarean section and for difficult mid forceps many prefer Cæsarean section, which they consider less dangerous to mother and baby. In lectures on the indications, applications and use of forceps, we were urged never to be too proud to do a Cæsarean section after an unsuccessful attempt with forceps.

The Cæsarean rate at Cook County Hospital runs at about 3.5 per hundred births and this is considered to be too low. The staff are very reluctant to perform Cæsarean section on primiparas, and a consultation of at least two staff men is required before this can be carried out. Cervical transperitoneal section is the operation of choice and is performed in most cases under local anæsthesia with intravenous Demerol given just before the peritoneum is opened and again after the baby is delivered. Cæsarean hysterectomy is always total.

Fourteen per cent of all the babies born at Cook County are premature. This high rate is due to the large percentage of coloured patients, poor economic status and the poor nutritional state of many of the mothers. The Chicago Health Department considers any baby under 5½ lb. as premature and requires that physicians report the birth of these babies within two hours of confinement. The Department then sends a health officer to see that the premature is receiving proper nursing and medical attention. All prematures are sent to a special ward after birth. The ones that develop infection are moved into a septic ward where each incubator is on separate technique. Isolette incubators are preferred and maintained at a temperature of 85 to 90° F. for one to two weeks, gradually dropped to 75 to 80° F. Oxygen concentration is regulated at 30% by the use of oxygen analyzers and is never allowed to go over 40%. These babies are not fed anything for 24 to 72 hours, depending on their condition. Then two-hourly alternate feedings of water and special breast milk or Enzylac milk are started. The special breast milk is prepared by adding four tablespoons of proteolysate powder and ½ teaspoon of baking soda to 32 oz. of breast milk which has been boiled for 10 minutes. The Enzylac milk is prepared by the addition of a pancreatic enzyme to fresh whole milk just before pasteurization. For babies under 3½ lb. the schedule starts at 2 c.c. and they are fed by medicine droppers through 4 c.c., then continued on gavage feedings from 6 c.c. On the third day, water-soluble vitamins are added and on the fifth day oral drops of iron. Every baby who develops pneumonia is presumed to have staphylococcal pneumonia until proved otherwise and is treated with erythromycin or chloramphenicol (Chloromycetin).

No mechanical resuscitators are used in asphyxia neonatorum because of the delay and uncertainty as to how much oxygen is entering the tracheal tree. All interns and staff are very adept at inserting the DeLee tracheal catheter without the aid of a laryngoscope. After insertion of the catheter the tracheal tree is aspirated and oxygen is puffed in through the catheter. For respiratory depression due to narcotics Nalline ½ c.c. or Lorfan is given into the umbilical vein. Some advise caffeine intramuscularly later if required. Every baby who requires resuscitation receives prophylactic antibiotics.

After the baby is born the mother is kept in a recovery room for one hour, where the remainder of her intravenous Pitocin is allowed to run in. Ergotrate is given in the case room immediately after the baby is born and then discontinued unless indicated. For pain and discomfort the mothers receive aspirin, phenacetin tablets and caffeine, but if it is severe codeine is added. They are made ambulant about eight hours after birth. No abdominal binders are used, so that one is able to check the uterus easily and frequently. Breast binders have also been discarded. In preparation for nursing, the breasts are scrubbed with green soap and a sterile towel is pinned under the vest. Exercises are started on the third day and continued for three months. The mothers are discharged on the third or fourth day because of the overcrowded conditions, but this is not an ideal situation as far as the staff are concerned.

Abortions form a large percentage of admissions. The routine on every inevitable or incomplete abortion includes a pelvic examination, inspection of the cervix and removal of any tissue protruding from the cervix. Curettage is performed very early on all abortions of 14 weeks or less. If the pregnancy is over this time, an attempt is made to empty the uterus as well as possible medically, and a curettage is then done. Septic cases are treated with large doses of penicillin and if there is no response one of the broad-spectrum antibiotics is used. Most curettages are done in a small operating room on the ward under Nembutal, morphine and scopolamine. If the cervix is firm or contracted down, a paracervical nerve block is done with 1% procaine with epinephrine and hyaluronidase.

I have discussed a few of the methods and techniques currently used in obstetrics at Cook County Hospital which I found interesting and which I hope will be of interest to other general practitioners. The knowledge I gained will help me to deal with my obstetrical problems in rural practice. In closing, I wish to express my appreciation to the Winnipeg Clinic Research Institute who made this grant available and also to the Manitoba Chapter of the College of General Practice of Canada for choosing me as the recipient this year.

COLLEGE OF GENERAL PRACTICE SCIENTIFIC ASSEMBLY

THE ADVANCE PROGRAM is available for the Second Annual Scientific Assembly of the College of General Practice of Canada. This will be held at the Royal Alexandra Hotel, Winnipeg, April 14-16, 1958, and will include the following:

(Continued on page 57)

Canad. M. A. J.
Jan. 1, 1958, vol. 78

HOUSING APPLICATION FORM

COLLEGE OF GENERAL PRACTICE OF CANADA SECOND ANNUAL SCIENTIFIC ASSEMBLY

WINNIPEG, Manitoba. **APRIL 14, 15, 16, 1958.**

THE ROYAL ALEXANDRA HOTEL, site of the scientific convention, has set aside a large number of double rooms, and a limited number of single rooms and suites. The closing date for reservations will be APRIL 1, 1958. After that date reservations cannot be guaranteed. When the supply of single rooms has been exhausted, a doctor may be invited to share a room with another.

WINNIPEG HAS several hotels and there are numerous excellent motels. The following will be available:

Hotels:	Royal Alexandra Hotel	St. Regis Hotel
	Fort Garry Hotel	Mall Hotel
	Marlborough Hotel	McLaren Hotel
Motels:	Cadillac Motel	Motel 75
	Adam's Motel	Bobby Jo's Motel

* * * * * * * * * * *

This application to be completed and forwarded by April 1, 1958, to:

Dr. A. G. HENDERSON, 2031 PORTAGE AVENUE, ST. JAMES, WINNIPEG 12, MAN.

Accommodation is requested for:

Name (Dr. and Mrs.).....

Address.....

Please reserve:

Double room with bath or shower (double bed).....

Double room with bath or shower (twin beds).....

Room with bath or shower for.....persons

Arriving in Winnipeg:

on.....April.....th (before 6 p.m.....)

(after 6 p.m.....)

Travelling by:

Automobile..... Train..... Air..... Bus.....

Choice of Accommodation:

1st choice is.....Hotel (Motel)

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HOUSING APPLICATION FORM

COLLEGE OF GENERAL PRACTICE OF CANADA SECOND ANNUAL SCIENTIFIC ASSEMBLY

WINNIPEG, Manitoba. **APRIL 14, 15, 16, 1958.**

THE ROYAL ALEXANDRA HOTEL, site of the scientific convention, has set aside a large number of double rooms, and a limited number of single rooms and suites. The closing date for reservations will be APRIL 1, 1958. After that date reservations cannot be guaranteed. When the supply of single rooms has been exhausted, a doctor may be invited to share a room with another.

WINNIPEG HAS several hotels and there are numerous excellent motels. The following will be available:

Hotels:	Royal Alexandra Hotel	St. Regis Hotel
	Fort Garry Hotel	Mall Hotel
	Marlborough Hotel	McLaren Hotel
Motels:	Cadillac Motel	Motel 75
	Adam's Motel	Bobby Jo's Motel

* * * * * * * * * * *

This application to be completed and forwarded by April 1, 1958, to:

Dr. A. G. HENDERSON, 2031 PORTAGE AVENUE, ST. JAMES, WINNIPEG 12, MAN.

Accommodation is requested for:

Name (Dr. and Mrs.).....

Address.....

Please reserve:

Double room with bath or shower (double bed).....

Double room with bath or shower (twin beds).....

Room with bath or shower for.....persons

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Quebec:

Montreal General Hospital, Montreal; Dr. William Storrar, Medical Director.
Notre-Dame Hospital, Montreal 24; Dr. J. R. Boutin, Medical Director.
Royal Victoria Hospital, Montreal 2; Dr. Ronald V. Christie, Physician-in-Chief.
L'Hôtel-Dieu de Québec, Québec; Dr. J.-B. Jobin, Medical Director.
Hôpital St-Joseph, 779 Ste-Julie, Trois-Rivières; Dr. J. J. Laurier, Medical Director.

Saskatchewan:

Regina General Hospital, Regina; Dr. H. E. Appleyard, Superintendent.
St. Paul's Hospital, Saskatoon; Sister A. Lachance, Administrator.

MEDICAL ECONOMICS

ACCIDENT AND SICKNESS CLAIM FORMS

In the past six years the number of Canadians covered by group surgical insurance has doubled and the number with group medical insurance has tripled. Today over 2.8 million persons have group surgical cover and over 1.9 million have group medical cover provided by about 30 insurance companies. In addition, over 1.2 million Canadians have group weekly indemnity insurance.

Obviously, with more people insured there has been an increase in the number of requests made of physicians and surgeons for certifications upon which benefit payments are based. Doctors have accepted this "paper work" in the knowledge that they are thereby assisting patients in financing their medical care on the voluntary basis. However, many doctors have been irritated by the variations in the wording and arrangements of the claim forms of the many insurance companies.

In 1954, The Canadian Life Insurance Officers Association, whose members provide the bulk of the group accident and sickness insurance in force in Canada, set up a committee to study the possibility of simplifying and standardizing accident and sickness claim forms. Shortly after the committee was named, both the Canadian Medical Association and the Ontario Medical Association approached the Life Officers Association independently, inviting the cooperation of life insurance companies in eliminating or at least reducing the many variations in their physicians' statements, and stating that this had become a problem of some concern to the medical profession.

The committee set as its desired objective that all life insurance companies transacting group accident and sickness insurance in Canada use forms asking the physician for the same information, preferably through the use of uniformly worded questions arranged in a uniform sequence.

After consultation with the medical associations, the committee developed model group insurance physicians' statements for weekly indemnity, supplementary weekly indemnity, and surgical and medical benefits. In July 1955 these statements were submitted to the companies. The committee's objective was realized to the extent that life and other-than-life companies writing 80% of this insurance in Canada agreed to adopt the statements when their claim forms were next reprinted.

While the companies' old forms will undoubtedly turn up in physicians' offices from time to time, the standard statements are coming into more extensive use. Generally the life insurance companies are hopeful that in the near future doctors will be reaping the full benefit of the efforts that have been made to simplify group claim forms.

Association Notes

C.M.A. COMMITTEE ON ECONOMICS

The Committee on Economics of the Canadian Medical Association met at C.M.A. House, Toronto, on November 28 and 29, 1957, under the chairmanship of Dr. R. K. Thomson of Edmonton. The Committee welcomed the three representatives of l'Association des Médecins de Langue Française du Canada: Dr. E. R. Blais of Montreal, Dr. R. Therrien of Quebec and Dr. J. Terrien of Ottawa. The meeting began with a discussion of the D.V.A. fee schedule; the Committee were informed of recent developments and that a majority in excess of two-thirds of the Executive Committee had voted to accept under protest the proposal of the Federal Government to pay 90% of provincial fee schedules. The Committee recommended that the relative value study designed to work out the relative economic values to be attached to various medical, diagnostic and therapeutic procedures should proceed. This will be a long and complicated task, but should ultimately produce figures which have hitherto been entirely unobtainable anywhere else.

The functions of the newly established Bureau of Medical Economics at C.M.A. House were discussed in detail. The Committee were informed of progress in the establishment of the retirement savings plan, for which publicity has been given in each issue of this Journal since September 1. Committee members laid stress on the continued need for improvement in liaison between divisional committees on economics and the Bureau of Medical Economics. Divisions will be asked to study ways in which these communications can be improved.

It is often asserted in some quarters that there are quite a number of persons in Canada who cannot obtain medical care for economic reasons. No one, however, has any figures to demonstrate the magnitude of this problem. It is suggested that a study of the problem be made in order to determine how many such persons exist, and how their situation can be dealt with if they cannot afford prepaid plan payments. Another subject of eventual study may be the value and nature of deterrent charges in insurance schemes.

The Committee heard and discussed a report on the conjoint meeting between the Executive Committee of the Canadian Medical Association and the Commission of Trans-Canada Medical Plans on November 2. In particular there was much discussion of the rela-

tionship between service and indemnity plans for health insurance.

The Committee heard reports from the divisions on the progress of universal hospital care in each of the provinces. The meeting between Federal Government ministers and the Advisory Committee to Government of the Canadian Medical Association was described, and the co-operative attitude of the Federal Government towards such problems as the distinction between hospital services and professional services was stressed. At the divisional level, steps are being taken everywhere to form active and progressive liaison groups between the division and the provincial government, with variable success. In general, divisions have tended to recommend the commission type of administration of a hospital insurance plan.

The Committee discussed the possible impacts of the universal hospital insurance plan on medical education, with particular reference to the possible shortage of teaching beds in hospitals. This point has been emphasized by both the Association of Canadian Medical Colleges and the Canadian Medical Association.

At the last C.M.A. annual meeting, the General Council referred to the Committee on Economics for study the problem of arbitration and negotiation with the Government. It was decided to seek further technical information from organized professional and other groups on satisfactory methods of establishment of arbitration and negotiation bodies.

The question of standardized insurance forms was once more taken up; further efforts will be made in co-operation with insurance companies to ascertain whether a single standard form can be produced.

The Committee discussed with the Editor of the *Canadian Medical Association Journal* the possibility of having a special issue of the Journal devoted to problems of hospital insurance. It was agreed that this should be arranged for some date in the early summer of 1958.

APPOINTMENT OF MR. KENNETH C. CROSS AS ASSISTANT SECRETARY (PUBLIC RELATIONS)

Mr. Kenneth C. Cross will assume the appointment of Assistant Secretary (P.R.) in The Canadian Medical Association as of January 1, 1958. Mr. Cross fills the vacancy on the staff of The Association created by the resignation of Mr. L. W. Holmes, who has served since July 1955. Born in Ruislip, England, Kenneth Cross came to Canada with his parents at the age of six and he has had a distinguished career in the graphic arts and in public relations. He served with the Canadian Army, 1941-45, in Canada and Europe, and on retirement with the rank of Captain he joined the Public Relations Division of the Federal Department of Labour for two years. Since 1947, Mr. Cross has been director of Public Relations for the Ontario Hospital Association and the Ontario Blue Cross, demonstrating very effectively the value of expert staff work in shaping public attitudes. He brings to his new appointment valuable experience in a closely related field and we welcome him as an official of The Association.

POUNDS FOR DOLLARS

For several years The Canadian Medical Association has cooperated with the British Medical Association in a very helpful currency exchange program, which has operated with the complete concurrence of the Bank of England. Three B.M.A. members per year are permitted to deposit with their Association the sum of £200 and to receive from the C.M.A. $540 on arrival in Canada. For the purpose of this plan the exchange rate of $2.70 per pound has been established.

To keep the transaction in balance, we receive deposits of dollars from three Canadians travelling to the United Kingdom and they in turn receive sterling currency to meet their needs.

If you are planning to go to the British Isles during 1958, you could materially assist this exchange program by sending your cheque in the amount of $540 made out to The Canadian Medical Association. Information concerning your date and method of travel are then transmitted to the B.M.A. and arrangements are made to provide you with £200 at any point designated.

We are grateful to those C.M.A. members who have participated in this plan during recent years, as they have made it possible for British doctors to obtain dollars which would otherwise be unavailable. Canadian doctors planning a trip to Britain are invited to communicate with the General Secretary, 150 St. George Street, Toronto.

ERRATUM

In the *Transactions of the Ninetieth Annual Meeting*, published in the September 1, 1957, issue of the *Journal*, an error appeared in the sequence of resolutions following the report of the Committee on Ethics.

At page 404 is recorded a resolution proposed by Dr. J. C. C. Dawson and Dr. M. O. Klotz to amend the Code in the Section headed "Fees and Commissions". The debate on this resolution is accurately reported to the point where a resolution to refer the matter back for the further consideration of the Committee on Ethics was defeated.

At this point Dr. Frank Turnbull expressed his reluctance to see the Code, a statement of ideals, used to shape the pattern of medical practice. He moved an amendment, seconded by Dr. T. J. Quintin, that the following words be deleted from this section of the Code: "In cases where a patient is referred to a surgeon, the practice of having the referring medical practitioner act as an assistant or anæsthetist at an operation should be discouraged unless in the opinion of the operating surgeon such assistance is necessary and the referring medical practitioner is competent for either of these duties by virtue of his training and experience". This amendment was carried and the original motion proposed by Drs. Dawson and Klotz was not put.

The final resolution proposed by Dr. Quintin, seconded by Dr. Turnbull—that in deleting this clause from the Code of Ethics, the Committee on Ethics be authorized to make any consequential editorial changes — was carried and correctly reported.

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MEDICAL MEETINGS

GOLDEN JUBILEE OF THE ROYAL SOCIETY OF MEDICINE

That flourishing British medical society, the Royal Society of Medicine, celebrated its Golden Jubilee last year, having been formed in London, England, in 1907 by the amalgamation of some 14 medical societies. Dr. Maurice Davidson has recently recorded its history in a book "The Royal Society of Medicine: the Realization of an Ideal", and in October the editorial committee produced a Golden Jubilee number of the well-known *Proceedings of the Royal Society of Medicine*, full of valuable papers and debates.

Among a plethora of good things, the following activities of sections may be mentioned in some detail.

Section of General Practice: Dr. Lindsay W. Batten contributed an extremely thoughtful paper, tempered with rather sardonic wit, on the *general practitioner's responsibility in the detection and management of common congenital abnormalities.* These included chiefly congenital cardiac anomalies and congenital deafness. He stressed the importance of maternal rubella in the first two months of pregnancy, and decried the modern preoccupation with unnecessary radiologic diagnosis which results in excessive irradiation of the mother and fetus. He suggested that this may be one of the causes of congenital abnormalities in subsequent pregnancies or succeeding generations.

Dr. G. B. Mitchell-Heggs discussed *common congenital disorders of the skin,* and considered that they could be classed under nævi, ichthyosis, late or abnormal development of the hair or nails, and syphilis. He felt that some nævi required no treatment, while others could be managed by sclerosing agents, cauterization, surgery, radiation, or various combinations. Ichthyosis is amenable to palliative treatment only, but surprising improvement in comfort and appearance results from vitamins B and D, oil baths and locally applied hydrocortisone. Dr. Mitchell-Heggs suggested that congenital syphilis be suspected in newborns with a "measly" rash, a runny nose, bullæ of the palms and soles, and general debility.

Mr. D. N. Matthews outlined the *surgical management of congenital malformations of the skin and appendages,* i.e. plastic surgery. It was his opinion that cleft-lip and cleft-palate surgery should be begun at age three or four; that if pharyngoplasty or rhinoplasty was later required it could be undertaken at age seven to 14; that secondary correction of hare-lip deformity, i.e. elevation of the nose-tip, should not be forgotten, and that birthmarks and moles should be treated by methods outlined by Dr. Mitchell-Heggs. Mr. Matthews also described the surgery of deformed ears, especially the correction of "bat-ears", through a post-auricular incision. He noted the present-day trends in the treatment of syndactyly and other hand deformities by surgery and prostheses, and he outlined briefly the correction of congenital ptosis and genital deformities, including epispadias and hypospadias.

Section of Medicine: This discussion, led off by Dr. Raymond Daley, was about *aortic stenosis.* The well-known divergences in the life-histories of aortic stenosis and mitral stenosis were again emphasized. In the former, of course, with the onset of symptoms, the downhill course is rapid, in the latter much slower, the proportion being 1-2: 5-10 years. The predilection of persons with aortic stenosis to sudden death and the relative rarity of atrial fibrillation were stressed. The frequency of effort syncope and angina in aortic stenosis was noted. The latter was considered to be the result of a combination of cardiac hypertrophy and low coronary filling pressure leading to relatively inadequate perfusion. A novel explanation of effort syncope was put forward, namely that, in aortic stenosis, minute output remains fixed while the muscle vasodilatation which normally results from exercise allows the peripheral blood pressure to fall. In mitral stenosis, under such circumstances, systemic vasoconstriction is reflexly initiated by the chronic pulmonary capillary congestion, which is a constant phenomenon, and syncope is thereby averted.

Dr. Daley suggested that we attach less diagnostic importance to the presence of a systolic thrill in aortic stenosis, and place more weight on systolic ejection clicks. He also indicated that, if aortic stenosis is sufficiently severe, blood flow may be so reduced as not to cause a murmur. He also indicated that ordinary fluoroscopy, if properly used, is so satisfactory for the detection of valve calcification that "if it had been invented after tomography, it would have been hailed as an advance".

Pulsus bisferiens, he felt, was not so useful as had been suggested as a sign of combined aortic stenosis and incompetence. If of mild degree, its detection depends on the pressure of the palpating finger, while if both components are marked, the sign is not usually required as a diagnostic aid.

Dr. Daley emphasized that the "critical" orifice area for the aortic valve and other valves was 0.5 sq. cm. in pure stenosis and 1.5 sq. cm. in combined stenosis and incompetence. He suggested that, at present, operation was being delayed in patients with this or lesser valve areas until myocardial failure due to impaired coronary flow supervened, and recommended that surgery be advised before the myocardial component has become significant. When failure has become severe, surgery does not improve the prognosis, and induced hypothyroidism is then recommended.

Mr. Andrew Logan outlined his experiences and those of other workers in the surgery of aortic stenosis, concluding that although the results of aortic valvotomy in gravely damaged valves are poor, they are frequently worthwhile. He gave as his opinion (not shared by most observers today) that the blind transventricular operation is probably as accurate as other methods, and he suggested that the use of aortic valvotomy be extended to asymptomatic patients whose pressure gradient and blood flow across the aortic valve have been measured and who are known to have severe stenosis. He felt, however, that an attempt should be made to compare the prognosis with and without valvotomy.

Dr. J. F. Goodwin indicated that deep T-wave inversion in precordial leads was much more common in left ventricular hypertrophy due to aortic stenosis than in L.V.H. due to coarctation or hypertension. This he felt was an indication of the relative myocardial *ischæmia* that occurs so frequently in aortic stenosis and is characterized so commonly by the anginal syndrome. He also considered that the correlation of the peripheral pulse tracing with the Valsalva manœuvre should be of value. He indicated that patients with severe aortic stenosis who showed little alteration in systolic upstroke time during the Valsalva manœuvre showed considerable alteration of this wave form.

Mr. H. P. Cleland suggested that aortic valvotomy under direct vision in a bloodless field and with a motionless heart would be the operation of choice in the future.

Dr. Ronald Gibson cautioned that aortic valve gradients be interpreted with extreme care, since these gradients depended heavily on stroke volume (blood flow), which itself depended on the presence or absence of aortic regurgitation. However, in all cases with a systolic gradient of 120 or more, stenosis appears to be the dominant lesion; and the relationship between the systolic gradient and left ventricular hypertrophy *is direct*, irrespective of the presence or absence of regurgitation.

Mr. D. N. Ross noted that a surprisingly large number of subaortic stenoses were being discovered at surgery. He suggested that valvular calcification is so common in aortic stenosis in patients of 30 years of age and over that subvalvular stenosis is suspected in any patient of this age-group who does not have a calcified valve on screening.

In general, it was agreed that blind valvotomies should give place to direct-vision procedures "with all deliberate haste".

Section of Urology: This section discussed *modern trends in the treatment of genito-urinary tuberculosis.*

Mr. Walter M. Borthwick emphasized that antimicrobial therapy cannot be recommended to supplant surgery in destructive lesions. However, whether it was used to supplant surgery in non-destructive lesions or whether it was used as a preamble to surgery, a minimum of nine months' treatment is required, and certain points were made. The three most useful drugs are streptomycin, PAS and isoniazid. If the organism becomes resistant to any one of these, or is known to be so resistant, the other two drugs will be used. If there is moderate to severe cystitis, with or without ureteritis, combinations of drugs excluding streptomycin are less likely to result in contracture. Conversely, if it is desired to close off a cavity with a narrow neck a combination containing streptomycin should be chosen. Daily streptomycin for prolonged periods invites toxic manifestations. With secondary infection, PAS and isoniazid are not sufficient, and some such antibiotic as streptomycin must be used. A combination of PAS and isoniazid is most suitable for domiciliary treatment. Drugs should be stopped for seven to 10 days before a bacteriologic examination.

Dr. W. G. Wimsett showed case-examples illustrating excellent results in localized, non-destructive lesions from antimicrobial therapy alone, given for prolonged periods.

Mr. Arthur Jacobs discussed the place of surgery in genito-urinary tuberculosis. He advocated nephrectomy, after antimicrobial therapy in advanced unilateral tuberculosis, and he spoke well of the procedure of partial nephrectomy, when possible.

He also discussed in detail various plastic procedures sometimes required after prolonged treatment, including ureteral implantations, uretro-colic anastomoses and ileocystoplasty.

Finally Mr. Howard G. Hanley and Dr. Raymond Parkes summarized the modern treatment of renal tuberculosis, including the indications for surgery. They made an extremely important point, namely that they have noted alarming *hypertension* in a large number of patients with unilateral or *bilateral* pelvi-ureteral or ureterocystic obstruction. They suggested that this situation most commonly occurs in patients who have had prolonged antimicrobial therapy *without* surgery; that surgery will be required in all such cases to relieve obstructions; and that possibly the efficacy of antimicrobial therapy in obviating the need for surgery is not an unmixed blessing. S.J.S.

LA SOCIETE MEDICALE DE MONTREAL

A highly successful meeting was held by La Société Médicale de Montréal in the Hotel Sheraton-Mount Royal, Montreal, on Saturday, December 7. At this meeting, a symposium on some present-day topics in medicine and surgery was presented. No less than 550 physicians registered, not to speak of another 50 or so who attended some of the sessions without registration. In addition to morning and afternoon scientific sessions, the participants were entertained at luncheon, where the president of the Society, Dr. Jean-Marie Roussel, was in the chair, and the luncheon speaker was Maître Gérard Delâge, who chose the subject "Si j'étais médecin" and used this theme to introduce a number of anecdotes which suggested that both medicine and the stage were poorer for his choice of the law as a profession. Participants were also invited to a reception after the close of the symposium. Two hundred doctors' wives were entertained at luncheon at the Chalet Hélène de Champlain. After luncheon, Monsieur René Chicoine, painter and art critic, discussed modern tendencies in painting and commented on a number of canvasses.

The morning scientific sessions were in charge of Dr. Wilbrod Bonin, Dean of the Faculty of Medicine in the University of Montreal. Like the afternoon sessions, all the proceedings were in French. Since six of the seven speakers came from the United States, this was a remarkable tour de force. Dr. Gilbert H. Fletcher, a specialist in radiotherapy from Houston, Texas, discussed the relationship of radical cancer therapy to the natural development of cancer. His thesis was that recent trends towards more radical surgical or radiological therapy of cancer had taught us a great deal about the development of the lesions. The time had now come to take a look at the progress obtained. For example, the cause of death should be analyzed, since death might occur because a growth was too advanced, because the primary was uncontrolled, or because regional or distant metastases had occurred, or simply because the patient died of intercurrent disease. Analyses on these lines would make for a better comparison of the results of radiotherapy and surgery. In each case a decision should be taken as to the aim of treatment; was it cure, long-range control, alteration in the mechanism of death, or relief of symptoms or of pain? Dr. Victor J. Cabasso, a virologist in the Research Division of the American Cyanamid Company, Pearl River, N.Y., discussed the present state of prophylaxis of virus diseases, with particular reference to influenza. In view of the lack of therapeutic success in this field, prophylaxis was extraordinarily important. Although the present U.S.A. epidemic of influenza had resulted in only 900 deaths among 4½ million cases, there might be a second and more serious wave. For proper prophylaxis, influenza vaccine of adequate composition should be used at the appropriate moment in a proper dosage. The trend was to replacement of monovalent (single strain) influenza virus by polyvalent vaccine, which should contain 400 CCA (chicken cell agglutinating) units per dose. Intradermal vaccination had been found a little less effective than, or as effective as subcutaneous vaccination.

Dr. Hans Selye of Montreal spoke on recent developments in research on stress, and showed that today's basic research could be the practical medicine of

tomorrow. His most recent demonstration of the importance of the endocrine milieu on disease was the production in rats and other animals, including the monkey, of necrotic cardiac lesions either with cortisol and a diet rich in phosphate or with very little of these two factors plus stress. The myocardial necrosis could be inhibited by magnesium or potassium chloride. The morning session closed with a discussion by Dr. André Cournand, professor of medicine in Columbia University, New York, of the control of the pulmonary circulation in normal man. He referred particularly to the effect of a number of factors such as muscular activity, anoxia, and certain drugs such as acetylcholine on the right ventricular output, fall in pressure in the pulmonary circulation and the volume of intrathoracic blood. He pointed out that it was necessary to have a clear picture of the regulation of pulmonary circulation in normal man before tackling problems of pulmonary circulatory pathology.

The afternoon session was in the hands of Dr. Jean-Baptiste Jobin, Dean of the Faculty of Medicine of Laval University. It opened with a discussion by Dr. Henry Doubilet of New York University of the treatment of recurrent pancreatitis by section of the sphincter of Oddi, this treatment being based on the view that the lesion was due to reflux of bile into the duct of Wirsung. The operation of sphincterotomy had cured some 90% of cases in the series presented. The clinical picture of recurring pancreatitis is not clear, and at times a laparotomy is needed for diagnosis. For the pain in pancreatitis, Demerol and not morphine should be used, but intubation usually relieved pain. Dr. Robert B. Greenblatt, professor of endocrinology, Georgia School of Medicine, Augusta, Georgia, discussed the Stein-Leventhal syndrome or the condition of bilateral polycystic ovaries. These patients suffer from amenorrhœa or menorrhagia, hirsutism, infertility and moderate obesity. The ovaries are enlarged and palpable on pelvic examination, or may be visualized by pneumoperitoneum. Finally, Dr. Chevalier L. Jackson, professor of laryngology, Temple University, Philadelphia, discussed the relationship of bronchoscopy and thoracic surgery. He gave illustrations of the way in which bronchoscopy can aid diagnostically in thoracic lesions, mentioning its role in benign and malignant tumours. In pulmonary suppuration it is indispensable for diagnosis, in order to identify the pathogen and its sensitivity. In bronchiectasis, the lesion should be studied by bronchoscopy before treatment by resection. In empyema, the cause of a bronchial obstruction was often discovered by bronchoscopy; in such cases external drainage would not cure unless the obstruction was relieved.

In commenting on the excellence of this symposium, it should be added that in staging it the Society had the collaboration of Lederle Laboratories of North American Cyanamid Limited; in his closing speech, Dr. Roussel remarked that this was an intelligent method of advertising.

MEDICAL LIBRARY ASSOCIATION

The Fifty-seventh Annual Meeting of the Medical Library Association will be held in Rochester, Minnesota, from June 2 to June 6, 1958, with headquarters at the Hotel Kahler. The theme of the Rochester meeting will be "Advances in Medical Library Practice". Mr. Thomas E. Keys, Librarian of the Mayo Clinic, is Convention Chairman and letters of inquiry should be addressed to him.

A pre-convention activity is being planned for Saturday, May 31. A series of refresher courses embracing many fields of medical library work will be given. Classes will be made up on the following subjects: Administration, Acquisitions, Classification, Cataloguing, Non-book materials, Photoduplication, Public Relations, Reference Work, Rare Books, History of Medicine, Bibliographic Services, Periodicals, Binding, Library Architecture, Equipment, and Medical Terminology.

Among the highlights of the regular program will be a panel discussion on what medical specialists expect from the medical library. Speakers will be from the Mayo Clinic Staff. A one-day trip is being planned to Minneapolis and St. Paul with visits to the University of Minnesota, the James J. Hill Reference Library and the Ramsey County Medical Library. There will also be a symposium on The Medical Center Library, and a session on American Medical History and Medical Librarianship. All medical librarians are cordially invited to attend.

INFLUENCE OF LIVING AND WORKING CONDITIONS ON HEALTH

An international conference on the influence of living and working conditions on health was held from September 27-29 in Cannes, France, under the presidency of Professor Parisot, honorary dean of the medical faculty of Nancy, France, and Professor J. de Castro, head of the Institute of Nutrition in the University of Brazil. Two hundred and fifty persons from 31 countries took part in the meeting and all the medical disciplines were represented. The three themes of the conference were (1) influence of nutrition on the development of disease; (2) the effects of work on physical and mental health; (3) late effects of ionizing radiation on human life. The conference proceedings will eventually be published and obtainable from: World Congress of Doctors for the Study of Present-Day Living Conditions, Helferstorferstrasse 4/12/3, Vienna 1, Austria.

CANADIAN PUBLIC HEALTH ASSOCIATION

The Joint Meeting of the Canadian Public Health Association and the Western Branch of the American Public Health Association will take place in Vancouver, May 20-22, 1958.

In many ways, public health problems in B.C. are very similar to those of our western neighbours south of the border. Close collaboration in the development of public health programs has long been established with a friendly sharing of all information and frequent coordination of scientific sessions. The last combined meeting of these two organizations took place in Vancouver in 1948.

Outstanding speakers from Canada and the United States have accepted invitations to participate in the general sessions. Separate sectional meetings will be held with the corresponding sections of the Western Branch. Preparations to accommodate sessions for all estimated 800-900 attending professional workers are well advanced and besides an outstanding scientific program, several social events are planned. The attractions of the B.C. Centennial festivities will no doubt bring many family members of our distinguished visitors and the entertainment committee is already at work to make their stay enjoyable.

The complete program, date and place of all sessions will be available later. Meanwhile, all people in public health should plan to attend this joint meeting.

CANADIAN FEDERATION OF BIOLOGICAL SOCIETIES

The First Annual Meeting of the Canadian Federation of Biological Societies will be held at Queen's University, Kingston, Ontario, in June 1958. Meetings of the Board and Council, and other business meetings, will be held on June 7 and 8, with the scientific sessions on June 9, 10 and 11.

PUBLIC HEALTH

COMMUNICABLE DISEASES IN CANADA

A sharp outbreak of diphtheria in the Grand Falls-Windsor area of Newfoundland has been reported. Eight children were affected, with two deaths. Simultaneously, a case of diphtheria was discovered in a 21-year-old in Gander. This case could not be shown to have any relationship to the other cases. From the Indian and Northern Health Services comes the report that one student from the Blue Quills Indian Residential School near St. Paul has been admitted to hospital with the diagnosis of diphtheria. A second child is also suspected of having the disease.

In Nova Scotia, 30-40 cases of mumps occurred in Clarkes Harbour and area during the last week of November. It affected mainly the school age group, although a few adults were also reported as having contracted the disease.

Further information has been received about a recent outbreak of food poisoning during two transatlantic crossings on board ship. Typing done on two specimens of fæces revealed the presence of *Salmonella senftenberg*. Four cases of typhoid fever, all from the same household at Blood Reserve, Alberta, have been diagnosed and treated. A barrel of drinking water used by this household was found to be grossly contaminated, as were samples of water taken from various sources in the area and from the town supply of Cardston.

LETTERS TO THE EDITOR

B.C.G. VACCINATION

To the Editor:

In the October 15, 1957 issue of the *Canadian Medical Association Journal,* I note some editorial comments on B.C.G. vaccination in Canada. Movements in favour of more intensive use of B.C.G. are certainly to be commended and I first wish to congratulate the author for his interest in the matter.

However, the following sentences in the editorial do not reflect the true importance of B.C.G. as studied and used in Canada:

> "Since Canadian medicine tends to follow the American pattern, we, in Canada, seem to have adopted much of the American attitude in the subject of B.C.G. vaccination. . . . To clear the ground at the outset, it should be stated that in both Canada and the United States, B.C.G. vaccination is recommended only for those who are unavoidably in close contact with individuals suffering from open tuberculosis, or otherwise inescapably exposed to that disease. . . . So far as the recommendations of the Committee [Medical Advisory Committee on Research Foundation in Chicago] are concerned, therefore, particularly as they apply to Canada, the only new suggestion is that vaccination be carried out in infants and children in areas of high incidence; and in certain parts of Canada, notably the province of Quebec, the eastern seaboard, and certain segments of the Indian population, that is being done already, albeit on an experimental basis. . . . It would seem, therefore, that we, in Canada, are gradually becoming members of the 'enlightened' group with respect to B.C.G. vaccination."

Canada has been a pioneer, not only in the study or in the clinical trials of B.C.G. but also in the routine use of this vaccine. As early as 1926 in Montreal (Calmette had made known his results in humans in 1924) and 1933 in Saskatchewan, important groups of individuals were B.C.G.-vaccinated. Statistical studies made independently by two well-known Canadian investigators, Baudouin (1926-1947) and Ferguson (1933-1947), established the safety and the value of B.C.G. vaccine and served as a basis for the development of the routine and systematic use of this vaccine in significantly large geographical areas of Canada.

When considering the history of B.C.G. in Canada, one is impressed by the fact that, from the early beginning, our country has made and followed *its own pattern of thought* concerning the study and the use of this weapon. Through the National Research Council, Canada was the first country in the world to support officially intensive and prolonged research on B.C.G.; the Quebec and the Newfoundland provincial governments were the first in North America to encourage experimental and large clinical trials and establish officially, in 1948, routine and systematic use of B.C.G. The Canadian Tuberculosis Association and its provincial branches have long recommended the practical use of B.C.G., although in provinces other than Quebec and Newfoundland the use of this vaccine has been more restricted and not officially introduced by the local governments as a systematic weapon in the program of preventive medicine.

In the provinces of Quebec and Newfoundland, B.C.G. is systematically and routinely used by the

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government health services. In Quebec (population 4,600,000) over 40% of newborns are vaccinated every year; more than 135,000 newborns, infants, school children and young adults were vaccinated last year. B.C.G. is administered in this province to more people than is any other vaccine. In Newfoundland (population 415,074), 13,000 persons were B.C.G.-vaccinated in the same year.

I agree that B.C.G. is not as intensively used in the other provinces of Canada, and your editorial comments certainly reflect the situation there. However, the Indian Health Services made the use of B.C.G. routine and intensive for all Indians in Canada a few years ago. May I add that, throughout Canada, about 1,000,000 persons have been vaccinated with B.C.G. since 1926 and the present total annual number of B.C.G. vaccinations is 160,000. Therefore, in Quebec, Newfoundland and Indian Health Services, B.C.G. has since 1948 gone beyond the experimental stage. It is not quite exact to say that we, in Canada, are "gradually becoming members of the 'enlightened' group with respect to B.C.G. vaccination". I should say that we very early became a member of that "enlightened" group of countries.

As one of those who have contributed in developing the use of B.C.G. in Canada, I can only regret that some Canadians still seem to forget the commendable efforts and achievements their young country has made in the last 30 years in the investigation and the routine use of a new discovery like B.C.G. Canada started earlier and has gone farther with B.C.G. than her good neighbour, the United States.

ARMAND FRAPPIER, M.D.,
Director

Institut de microbiologie et d'hygiène,
Université de Montréal,
Montreal, Que.,
November 22, 1957.

AUTHORITY FOR MEDICAL PRACTICE

To the Editor:

The conflict between private practice and socialized medicine is an ideological one and must be fought on ideological grounds. It therefore behooves us to attempt some ideological evaluation of medical practice. In all that we do, some part is essential and some part is accidental and while the accidentals are subject to change, the essentials must be maintained. The subject may be approached from many different angles, each valid in its own order, and for the purpose of this discussion I have chosen the question of authority.

The practice of medicine carries with it grave responsibility and great personal intimacy—indeed the medical contract is the most intimate of all social contracts, so intimate is it that the doctor must identify the patient's welfare with his own will and act. Such a contract may not be undertaken idly nor must such a privilege be accepted without a thorough understanding of the principles which authorize the medical contract. What is it then that allows us, a small handful of the total population, to assume this heavy responsibility? How is it that we, rather than someone else, practise medicine: that we practise it in a given location rather than somewhere else and that we practise it in relation to one particular individual rather than another? A proper understanding of our own position requires an understanding of the answer to these three questions. The authority by which we practise medicine is trifold—ourselves, our community and our patient.

In a general sense, unspecified as to place or individual, we have a right to practise medicine because of our qualifications, our knowledge and our ability, and these qualifications are our authority. While they are recognized externally in the form of university degrees, it is not the external recognition which constitutes the authority; it is the very possession of the qualifications and our own cognition of them. In this sense, we carry within ourselves the authority to practise medicine and we are or are not authorized to practise it precisely by our own possession or lack of the necessary qualifications. We are not, however, thus authorized to practise in any given community. This intrinsic authority we may call the authority of knowledge and although when we enter upon our medical career it is objectivized in the formal conferring of degrees, it subsequently becomes completely subjective but continues to impose upon us the obligation of keeping our knowledge and our skill abreast of medical development. This interior authority ceases if our qualifications lag behind an acceptable norm. Continuous study and application are, therefore, a necessary condition of retention of this authority.

In a local sense, we practise in one community rather than another because we are licensed to do so by the community, i.e. upon the authority of the community. The legislative power of the community is directed towards the harmonious control of the activities of its citizens in so far as this activity bears upon the community, for the purpose of law in a community is to maintain order in the activity of its citizens. Now a citizen is not related to the community in the way that a hand is related to the body, for in the latter case the whole purpose of the hand is to serve the body, but the citizen is part of the community only in regard to his activity, and civic authority is an authority over activity and not an authority over the human person. Civil law is not intended primarily to preserve a citizen from his own evil but from the evil of others—it is not, for instance, designed to prevent the moral guilt of robbery but to prevent the physical activity of robbery as it is harmful to society. Obviously, as truth is one, civil and moral code ultimately and ideally will be one. (It must be understood, of course, that the civil authority cannot abstract completely from consideration of the person of its citizens—rather it is obliged to recognize those rights and duties which spring from the very nature of its citizens and it is morally prohibited from framing laws which would contravene the natural rights and duties which belong to the citizens as human persons. Indeed, the civil authorities should, as far as possible, aid its citizens in the fulfilment of their personal duties even though the latter have no direct bearing upon the community as such, but the civil authority has no legislative power in this respect.) The practice of medicine constitutes an activity within the community and it is obvious that the civil authority may, after due examination of his qualifications, authorize a doctor to practise in its community. But the civil authority cannot confer a greater right than it possesses itself—it can give the doctor the right to practise in relation

to the activity of the community (and this we call public health), but it cannot give the doctor the right to practise in relation to any particular person, for as we have seen it has no right over the person of its citizens.

Community living as opposed to single family units introduces hazards to health, hazards which are multiplied by the complexity of the community, and it is the province of public health to obviate these hazards. Thus the community water supply may be chlorinated to obviate the effects of pollution; the activity of an infectious person may be controlled to prevent his spreading of infection (and it is to be noted that although the civil authority may isolate him, it may not treat him unless perhaps that be the only way in which the spread of infection can be prevented, when it is to be further noted that the treatment is given for the benefit of the community and not for the benefit of the person as such); and compulsory vaccination may be imposed as a condition of entering the community. A short examination of the intent of public health measures will soon show that they are not concerned with the personally identified individual but (in so far as they are concerned with individuals) with the activity of individuals without adverting to their individual personality. In other words, action taken in regard to a particular individual in a public health measure is in no way related to his personality. It is then by the authority of the community that we practise within it but not in relation to any particular subject.

Whence then comes the authority to treat an individual? We have seen that it comes neither from ourselves nor from the community. It must therefore come from the individual. And this is most reasonable, for the individual is responsible for the preservation of his own health—this is a natural responsibility, it arises out of what he is and he therefore has both the duty and the right to act in accordance with this responsibility. This duty is essentially personal because it is not just the body that is ill, it is the *person who* is ill. Nor is it a shared communal responsibility (abstracting for the moment from children and irresponsible adults), but it is entirely individual, *each* person being responsible for *his own* health. This authority invested in any individual is the ultimate authority for the medical contract and it makes the private practice of medicine possible. Not only that, it makes it essential. For this responsibility is binding in conscience and must be fulfilled according to the dictates of that individual conscience. (We are wont to talk of the private practice of medicine as though there were a public practice of medicine. The latter is public health, for any medicine practised in relation to the individual as such is private practice precisely because the person is a private being.) If the patient is to delegate his responsibility for the preservation of his health, it should be to someone who can comprehend that responsibility as fully as can the patient, that is, to someone co-natural with him—another human being upon whose shoulders rests the identical responsibility. The patient is free to choose for himself—his doctor must be equally free: the patient is one, so that responsibility and act are undivided—his doctor must be one: the patient's sole responsibility is to himself—the doctor's sole responsibility must be to the patient. It is only thus that the doctor and patient can obtain the full benefit of co-naturality and it is for this reason that the doctor cannot be the servant of anyone other than the patient. Thus, although it may be agreed that in socialized medicine the patient is ultimately treated by an individual doctor, such a doctor has not the necessary freedom to fulfil the responsibility he is expected to accept. Mention may be made here of those preventive medical procedures which are not concerned with the immediate activity of the individual, such, for instance, as poliomyelitis inoculation in which the person is inoculated, not because he constitutes a present menace to the public health but for his own benefit. Here the principle of voluntary submission is well recognized and the patient or patient's parents are requested to sign a consent form before the procedure is carried out. Because of this necessity of individual consent, this type of preventive medicine would appear to belong to the category of private practice but because of the remoteness of the object, the completeness of the act in itself, the almost complete lack of decision on the part of the doctor concerned and a responsibility limited to the mechanics of the procedure rather than to its effectiveness, the medical contract in its full sense is not invoked and such procedures may be carried out by a physician employed by the state—but only with the patient's consent.

It is well to reiterate that the civil authority may offer aid to the individual in the preservation of his health whether this aid means a form of economic relief in the case of excess medical expense or the sharing of medical expense or the making available of preventive drugs in the case of personal ills, but it must not substitute itself for the patient as the authority of the ultimate medical contract nor depose the patient, whom only the doctor shall call "*master*".

We have thus found three authorities upon which the practice of medicine depends and they correspond to the three modes of medical practice. The first is purely in the abstract and includes medical research and statistics. It involves no place or person. The second we call public health, which has a locus but no individuation. The third we call private practice. There is no authority for a fourth.

C. P. HARRISON, M.D.
Suite 420, 604 Columbia Street,
New Westminster, B.C.,
November 28, 1957.

CANCER TREATMENT

To the Editor:

Miss Evelyne Lees, of Edmonton, has printed, as she states, 2000 copies of a red sheet describing her theories on cancer and some of her views on appropriate treatment. Unfortunately, she has not signed the article herself and the only name appearing in the print is mine. I wish it to be known generally that she used my name without permission or authorization. Moreover, she had no authority to use the information which she published regarding some of the early experimental work we are doing on cancer.

500 Medical Arts Bldg., GORDON MURRAY, M.D.
Toronto 5, Ontario,
November 28, 1957.

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REGISTRATION AND ENABLING CERTIFICATES

To the Editor:

Acting on instructions from Council, I am forwarding to you for publication the following motion which was moved, seconded and duly carried at the last meeting of the Council on November 15, 1957:

"The Registrar-Treasurer be instructed to insert a notice in the Ontario Medical Review and the *Canadian Medical Association Journal* stating that on and after April 13, 1958, applicants for registration to practise medicine in this province who have obtained their enabling certificates elsewhere will be required to present evidence that the enabling certificate requirements of the College of Physicians and Surgeons of Ontario have been complied with."

HARRIS MCPHEDRAN, M.B., LL.D.,
Registrar-Treasurer, The College of Physicians and Surgeons of Ontario.

174 St. George St.,
Toronto 5, Ontario,
November 22, 1957.

THE LONDON LETTER

(From our own correspondent)

MINISTERIAL MALADROITNESS

It looks as if the National Health Service were fated to remain the Cinderella of government departments. No sooner have the residual ripples of the upheaval caused by the Prime Minister's handling of the doctors' pay dispute earlier this year began to settle than he stirs up another storm by selecting the National Health Service for his first sally in trying to arrest the perpetually recurring demand for increases in wages. This has been done by refusing to sanction a 3% rise in the pay of the lower ranks of the hospital administrative service, which had been agreed on by both staff and hospital management representatives. Nothing could have been more calculated to cause the maximum of discontent and convince an ever-growing section of the community that the whole concept of a national health service based upon liberal professional principles is utterly foreign to politicians. No-one can challenge the Prime Minister's legal right to take the action he has, and there are few who do not support him in his general thesis that wage increases must be controlled if the nation is to survive. Further, there are many who feel that the administrative and clerical staff of the Service has been unnecessarily swollen during the last ten years. But in view of the Government's persistent refusal to take more logical steps which would not only save money but also increase the efficiency of the Service, it is the acme of tactlessness to pick the Service out for the first shot in the anti-inflationary action, especially when the sum to be saved is only in the region of £600,000 (about $1,600,000). It is, indeed, with a heavy heart that the profession enters upon the New Year.

COLLEGE OF GENERAL PRACTITIONERS

The fifth annual report of the College of General Practitioners, which is published as a supplement to the December issue of *The Practitioner*, is yet another account of continuing progress. The membership of the College is now 4450 (3228 members and 1222 associates), which represents an increase of 707 during the year. Education—undergraduate and postgraduate—and research continue to be the main preoccupations of the College. Its "National Register of Family Doctors Willing to take Students" now contains over 1200 names. Of these, more than 450 general practitioners are willing to have students spend a consecutive period of a week or more in their practices; the remainder are willing for students from the nearest medical school to visit their practices on a day-to-day basis on a number of occasions. The research register of the College now contains the names of more than 550 general practitioners, and at the moment 47 faculty-sponsored and seven College-sponsored investigations are well under way. The outstanding domestic problem is that of criteria for membership, a subject on which there is still considerable difference of opinion among members. At the annual general meeting of the College last month, the Council was requested to draw up new criteria of membership.

INFLUENZA

The first wave of influenza is now waning. In the week ending November 9, the last week for which official figures are available at the moment, there were only 149 deaths from influenza in the 160 great towns of England and Wales, compared with 263 in the previous week and a maximum of around 600 in mid-October. On the whole, the disease has run a comparatively benign course, marked by its high infectivity and the large number of children affected. The usual duration of the illness has been five to seven days.

The position with regard to supplies of vaccine is still rather vague. Small amounts are coming forward and are being reserved in the first instance for priority classes, including doctors and hospital staff. There are reports from certain areas of doctors not taking up their allocation, presumably in the belief that there is little point in being vaccinated at this stage of the epidemic. Official quarters, on the other hand, are obviously—and rightly—worried about the possibility of a second outbreak in the New Year, which may be of a more virulent nature.

THE WELLCOME TRUST

In these days of high-power research, chromium-plated laboratories and sputniks, it is refreshing to find a twin-engined motor cruiser included among the grants of a research foundation such as the Wellcome Trust. One of its latest grants is the sum of up to £26,000 to the Medical Research Council for the construction and shipment to the Gambia of a twin-engined motor cruiser which will be used partly as a floating research laboratory, and partly to assist communication between the Council's research laboratories at Fajara and the field station near the village of Keneba, some 70 miles up river.

London, WILLIAM A. R. THOMSON
December 1957.

ABSTRACTS *from current literature*

MEDICINE

Resuscitation from Cardiac Arrest due to Acute Coronary Thrombosis.

D. W. HANNON *et al.*: *Dis. Chest*, 31: 655, 1957.

A case of cardiac arrest due to myocardial infarction in a hospital employee with successful resuscitation and survival for two weeks is presented. Some patients with cardiac arrest secondary to infarction probably can be resuscitated, since death in these cases is often due to a disturbance of rhythm rather than myocardial failure. The writers feel that an active interest in therapy for cardiac arrest in a resident-intern group of any hospital should produce, in time, some salvage from cardiac arrest secondary to coronary thrombosis. S. J. SHANE

Glucose Level in Pleural Fluid as a Diagnostic Aid.

L. M. BARBER *et al.*: *Dis. Chest*, 31: 680, 1957.

The results of pleural fluid glucose determinations in 100 cases with normal blood sugar levels are described. The conclusion is reached that pleural fluid glucose levels of 26 mg. % or lower are highly suggestive of tuberculosis as the cause of the effusion. In cases with levels of 80 mg. % or higher, one should be suspicious of a non-tuberculous etiology and perhaps should consider early thoracotomy in order to establish the diagnosis. It is emphasized that, although pleural fluid glucose levels are a valuable index, they should not be relied upon as the sole diagnostic criterion.

S. J. SHANE

Trends in Cardiovascular Syphilis.

A. RIMSA AND G. C. GRIFFITH: *Ann. Int. Med.*, 46: 915, 1957.

Charts of 954 patients with cardiovascular syphilis were analyzed to determine trends in incidence, diagnosis, treatment and prognosis at the Los Angeles County Hospital during the years 1945 to 1954. In that period, the incidence of cardiovascular syphilis decreased by approximately 47%. Of the total group of patients, 26.8% were found to have syphilitic aortitis; 49.5%, syphilitic aortic insufficiency; 9.3%, syphilitic aortic insufficiency associated wth syphilitic aortic aneurysm; 14.0%, syphilitic aortic aneurysm. The most common complication was congestive heart failure, followed by hypertension and angina pectoris. Blood serologic reactions for syphilis were positive or repeatedly doubtful in 82% of all patients studied. Radiologic findings were normal in only 8.8% of 633 patients examined. Normal electrocardiograms were obtained in less than 4% of patients examined. No electrocardiographic pattern pathognomonic of cardiovascular syphilis was noted. Penicillin was confirmed as the drug of choice for the treatment of cardiovascular syphilis; progression of cardiovascular lesions was halted (as evidenced by radiologic examination), and untoward reactions were less frequent than were reactions following adequate treatment with bismuth or arsenic compounds, or both. Prognosis as to long-term survival was best in the younger age groups. S. J. SHANE

Some Observations on Hyperglobulinæmic Purpura (Waldenstrom's Syndrome).

W. E. SYMON *et al.*: *Am. J. M. Sc.*, 234: 160, 1957.

Three patients demonstrating the syndrome of hyperglobulinæmic purpura are presented. The striking clinical feature is that of episodes of purpura (chiefly on the dependent parts) occurring over a number of years. Two of the patients exhibited the benign and chronic course characteristic of the syndrome. The third case is unique in being the first reported case of this disorder associated with, and possibly due to, a disseminated reticulum-cell sarcoma.

The only defect in the hæmostatic mechanism which could be detected was that of capillary fragility. The erythrocyte sedimentation rate was uniformly accelerated. An abnormality of the serum protein was manifested electrophoretically by an increase in the gamma fraction and ultracentrifugally by an increase in the 7-S component. No cryoglobulins or macroglobulins were detected.

It is suggested that this serum protein abnormality is related to the loss of integrity of the capillary wall. S. J. SHANE

An Effective Combination in the Treatment of the Hypertensive Patient.

H. E. NUSSBAUM *et al.*: *Am. J. M. Sc.*, 234: 150, 1957.

In this study 37 patients with hypertensive disease were treated for a period of 17 months with the aid of mecamylamine and meprobamate, singly and in combination. Twenty-eight of these 37 patients with moderately severe and severe hypertension treated with mecamylamine had successful control of blood pressure. Meprobamate alone had no effect on blood pressure. In combination, meprobamate and mecamylamine provided objective and subjective improvement in 35 patients. While significant additional reduction in blood pressure did not occur with meprobamate, management of the patients was facilitated considerably. A general sense of wellbeing, loss of many chronic complaints of a mild nature, and loss of apprehension were all evident in the majority of patients.

Meprobamate has distinct advantages over phenobarbital and reserpine for adjunctive therapy, since it has none of the habituating liabilities of phenobarbital and is free of the threat of severe mental depression, water retention and nasal stuffiness of reserpine. S. J. SHANE

Rapid Arrhythmias and Regular Tachycardias in Paroxysms in Patients with and without Accelerated A-V Conduction.

T. M. RUNGE *et al.*: *Am. J. M. Sc.*, 234: 170, 1957.

Patients with accelerated A-V conduction are peculiarly prone to paroxysmal atrial tachycardia and atrial fibrillation. The development of the paroxysmal atrial disorders gives rise to high ventricular rates with bizarre electrocardiographic tracings

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which are alarming in simulating serious ventricular mechanism disorders.

The probable mechanism of these pseudoventricular paroxysms is discussed. The diagnostic criteria are set forth with emphasis on the presence of a P wave on every complex in the tachycardia and short runs of definitely supraventricular fibrillation with narrow QRS in between the bizarre pseudoventricular runs of complexes. Some of the reported cases of "ventricular fibrillation with recovery" are of this type. Previously only cases with accelerated A-V conduction in the resting tracing have been reported. This series presents a probably rare exception to this rule. The good prognosis of the pseudo-type is emphasized. The rapid and satisfactory response to the relatively safe administration of procaine amide intravenously is demonstrated. The importance of taking the clinical picture into consideration in electrocardiographic interpretation is stressed. It follows that the presence of paroxysmal disorders, regular or irregular, with rates above 240 is presumptive evidence of the presence of accelerated A-V conduction as the fundamental cardiac mechanism defect in the patient.

S. J. SHANE

Experiences with Thiotriethylene Phosphoramide (Thio-Tepa) in Advanced Ovarian Cancer.

H. NAUJOKS, C. E. CRANDALL AND W. TREETER: *Bull. Sloane Hosp.*, 3: 62, 1957.

The use of thiotriethylene phosphoramide, a drug with nitrogen mustard-like action, in the therapeutic management of 20 cases of advanced ovarian carcinoma is discussed. Its lack of toxic side effects during administration enhances its usefulness in very sick patients. This compound has produced temporary but occasionally marked objective remission in 12 of 20 patients in whom it has been adequately evaluated; however, its toxicity in regard to bone marrow function cannot be overstressed.

ROSS MITCHELL

Serum Transaminase in Pulmonary Disease and Multiple Infarctions.

J. R. WALSH *et al.*: *Ann. Int. Med.*, 46: 1105, 1957.

In this study 318 determinations of serum glutamic-oxalacetic transaminase (SGO-T) were carried out by the spectrophotometric method of Karmen in 112 hospitalized patients, with the object of determining the specificity of the method for the diagnosis of myocardial infarction. The results confirm previous reports of the elevation of SGO-T from six hours to four days after the occurrence of a myocardial infarction. In sporadic cases, elevations were observed 10 to 14 days after myocardial infarctions. This may indicate the occurrence of an extension of the infarction.

Although elevation of SGO-T is found most commonly in acute myocardial infarction, it also occurs not infrequently in necrosis and infarction of other organs, and the interpretation of a high figure for serum transaminase therefore must be extremely cautious. The highest values for SGO-T were found in patients with multiple pulmonary and renal infarctions. In such cases, values of 500 units and more were observed. The curves of SGO-T values as related to the time of a pulmonary infarction were strikingly similar to the corresponding curves obtained in cases of myocardial infarction. In pulmonary infarction, elevations of between 40 and 100 units occurred, especially after the fourth day. In certain cases the increased values occurred during the interval between the sixth hour and the fifth day, that is, exactly as in cases of myocardial infarction. This fact evidently reduces the utility of the test as a distinguishing feature between myocardial and pulmonary infarction. However, the occurrence of values of more than 100 units in pulmonary disease is rare. The present series included only two cases of this type. A value of 186 units was registered in one patient with fulminating pneumonia, and a value of 104 units in one patient with pulmonary infarction. The study revealed SGO-T values of more than 40 units in diseases such as pulmonary infarction, multiple infarctions, pneumonia, carcinoma of the liver, pancreatitis, trauma and cirrhosis of the liver, and in one case of uræmia.

S. J. SHANE

Clinicopathologic Correlations of Renal Biopsies from Essential Hypertensive Patients.

M. SALTZ, S. C. SOMMERS AND R. H. SMITHWICK: *Circulation*, 16: 207, 1957.

Renal biopsies obtained at sympathectomy from 1251 cases of essential hypertension were analyzed pathologically. Severe arteriolar sclerosis was found in 5.0%, arteriolar necrosis in 2.0% and pyelonephritis in 13.4% of cases. Moderate local variations in the arteriolar alterations were found in single biopsies and in about 40% of bilateral specimens.

Clinico-pathologic correlations in 305 patients showed a general correspondence between the degree of renal arteriolar sclerosis and the clinical evaluation, postoperative blood pressure response, and renal function judged by phenolsulfonphthalein excretion tests. Severe arteriolar sclerosis was associated with more advanced age and a higher mortality.

Diffuse fibrinoid arteriolar necrosis was not correlated uniformly either with papillœdema or other clinical criteria of malignant hypertension, and was not indicative of a uniformly grave prognosis. The kidney biopsy should be considered as ancillary to the other methods used in the clinico-pathologic evaluation of the hypertensive state.

S. J. SHANE

Mediastinal Emphysema Complicating Myocardial Infarction and Left Ventricular Failure.

J. C. NASH: *Ann. Int. Med.*, 46: 594, 1957.

Mediastinal emphysema, precipitated by acute failure of the left ventricle following myocardial infarction, can be considered a rare occurrence since a survey of the literature reveals only one previously reported case.

In the pathogenesis of mediastinal emphysema, the possible predisposing and precipitating factors include cough, dyspnœa, or the forceful straining, encountered in various situations and disease entities.

In the case presented, this complication occurred in a 67-year-old woman who developed an acute coronary thrombosis with posterior myocardial infarction four weeks before her death. A typical manic-depressive psychosis occurred and hospital admission was refused at this time. Two weeks before admission, the patient developed acute left

ventricular failure. Treatment consisted of digitalization and the use of a diuretic, but complete cardiac compensation could not be brought about. On the day of hospital admission, the patient suddenly developed acute and severe pulmonary œdema followed by rapidly progressive subcutaneous emphysema which first affected the neck and subsequently involved the face and upper chest. This was associated with a great deal of dyspnœa, cyanosis and chest pain, and the patient went into collapse. A crepitant sound, synchronous with the heart beat, was audible over the entire precordium (Hamman's sign). Small incisions into the subcutaneous tissue of the supraclavicular and suprasternal areas, needle puncture of the third intercostal space, the administration of oxygen, and various stimulants were without effect. The patient died an hour after being transferred to hospital. Permission for autopsy could not be obtained.

In his discussion of etiological factors and of pathogenesis, the author subscribes to the pressure-gradients theory of the Macklins. Sudden pressure gradients between the intra-alveolar air and the blood within the intrapulmonary vessels can produce interstitial pulmonary and subsequently mediastinal emphysema, resulting from localized hyperinflation of the pulmonary tissues and reduction of blood flow in the pulmonary vessels.

S. J. SHANE

SURGERY

Primary Lymphœdema.

J. B. KINMOUTH *et al.*: *Brit. J. Surg.*, 45: 1, 1957.

Primary lymphœdema can be divided according to the age at which the disease becomes manifest into congenita, præcox and tarda. A group of 107 such cases where the œdema involved the lower extremities were collected at St. Thomas's and St. Bartholomew's Hospitals, London. The lymphatics were studied by the injection of patent blue for direct observation and by the injection of 70% diodone for lymphangiograms. Maldevelopment of lymphatics was demonstrated in all three groups. The earlier the onset of the œdema, the more marked or widespread the defects of lymphatic structure. A familial tendency was present in 17% and other congenital defects were often present. Lymphangiograms show three main types: hypoplasia, varicosity and aplasia. The morbid anatomy is different from that seen in acquired obstructive œdema.

BURNS PLEWES

Acute Appendicitis in Infancy and Childhood: A Twenty-Year Study in a General Hospital.

J. H. FOSTER AND W. H. EDWARDS: *Ann. Surg.*, 146: 70, 1957.

In a period of 20 years, 489 children under 13 years of age have been operated on for appendicitis at Vanderbilt University Hospital. In 27% the preoperative diagnosis was not confirmed, but the principle of operating upon children with right lower quadrant tenderness not otherwise explained is still the recognized policy. It did not seem that the appendix in infants was more likely to rupture early, but the average duration of symptoms before operation and the frequency of general peritonitis were greater in infants. The more frequent use of cathartics and of antibiotics in children before a diagnosis is made leads to masking of symptoms till late. Any of the laboratory or clinical findings may be absent or normal in acute appendicitis, but the most constant finding is maximal tenderness in the right lower quadrant. In 30 cases of appendiceal abscess, drainage alone was done and in 25% of these there was an acute exacerbation before the interval appendectomy was done within one to eight weeks after the drainage. Fæcaliths were found in 25% of cases of unruptured and ruptured appendicitis.

No difference as regards mortality or complications was noted between cases receiving antibiotics and those without antibiotics in unruptured acute appendicitis.

The mortality rate decreased from 8.8% in 1936-1940 to 1% in 1951-1955. There was very little change in the percentage of cases of ruptured appendix during the 20 years.

The increased mortality rate in ruptured appendix in infants is merely a reflection of the increased number of ruptured appendices, for the mortality was all in perforated cases and was the same for each age group in perforated appendix.

The only likely improvement in the mortality rate of appendicitis in children will be due to more frequent appendectomy before perforation.

BURNS PLEWES

Practical Points on the Pathology and Surgical Treatment of Ulcerative Colitis.

CUTHBERT E. DUKES AND H. E. LOCKHART-MUMMERY: *Brit. J. Surg.*, 45: 25, 1957.

About half the patients admitted to hospital with ulcerative colitis require surgical intervention because of chronic invalidism, acute fulminating disease, the presence of complications or the risk of carcinoma. The morbidity and mortality associated with surgical intervention is decreasing and earlier surgery is being advocated.

The main mortality with both medical and surgical treatment is in the acute, fulminating type; to judge when surgery becomes mandatory is difficult. Abdominal distension is ominous, as it precedes perforation. Steroid therapy is not to be persisted in too long in the hope of last-minute remission.

An important complication is arthritis, for each exacerbation of the joint lesion leads to further damage. Effective treatment of the colitis is necessary to prevent crippling, so that colectomy is to be advised. Other complications such as liver disease, skin infection, or erythema nodosum may tip the scales in favour of surgical treatment. Operation may be necessary to save life if perforation occurs. Perianal abscesses and fistulæ should be treated by draining the abscesses but other local surgery is seldom wise.

There is now no doubt that there is a predisposition to cancer in ulcerative colitis, probably because of the continued regeneration of epithelium and the presence of abundant vasoformative tissue. In a series of 153 colectomies for ulcerative colitis at St. Mark's there were eight cancers. The average age of those with cancer was 42 years. It is justifiable to state that any patient who has had ulcerative colitis for 10-15 years has entered a phase in

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which cancer is a definite risk. The disease is often not very severe in those that develop cancer, and pseudopolyposis precedes cancer in only about half the cases. Cancer does not change the symptoms or x-ray picture till it is advanced.

The choice of operation is discussed. Some cases whose arthritis or other ill-health persisted after colectomy till the rectum was removed are noted. It is argued that ileostomy alone may be the best operation in the seriously ill, acute fulminating case, but many surgeons advocate immediate colectomy if the patient can stand it. The controversy over ileo-rectal anastomosis is not finally settled and it may be that there are certain kinds of patients, such as children or mental defectives, who should have the anal sphincters preserved.

Biopsy is not a reliable method of deciding the severity of the disease or of foretelling its course.

Immediate mucocutaneous suture has largely abolished "ileostomy dysfunction".

Q.T. Associations, groups of patients with ileostomies, are making most important contributions towards complete rehabilitation of people who must adjust to the major physical change. Such an association in the U.S. publishes the *Ileostomy Quarterly*. The day-to-day management and the improvement of appliances for ileostomized patients is making rapid progress as a result of the work of these lay groups. BURNS PLEWES

THERAPEUTICS

Effect of Rauwolfia serpentina and Reserpine on Blood Pressure in Essential Hypertension.

M. B. SHELDON AND J. H. KOTTE: *Circulation*, 16: 200, 1957.

A two-year double-blind study of 18 ambulatory patients treated with *Rauwolfia serpentina* and reserpine is presented. Although a statistically significant lowering of systolic and diastolic blood pressures by *Rauwolfia serpentina* and reserpine was frequently observed, one point deserves emphasis. Reduction of blood pressures by 10 to 15 mm. Hg by the drug often assumed statistical significance of high order. While a significant pharmacologic effect was demonstrated, this effect was not necessarily significant from a clinical standpoint. For example, reductions in mean systolic blood pressure from 203 to 188 and in mean diastolic blood pressure from 123 to 112, although statistically significant, have doubtful therapeutic implications. There were no serious untoward reactions during therapy. S. J. SHANE

Effect of Isoniazid and Cortisone in Children Vaccinated with B.C.G.

C. CHOREMIS *et al.*: *Am. Rev. Tuberc.*, 76: 263, 1957.

In this study B.C.G. was administered intradermally to 24 children between the ages of six and 11 years. The children were divided into three groups of eight each. One group served as controls. All of the children became Mantoux positive, and, on biopsy of the vaccination site, demonstrated typical tuberculous lesions. The second group received isoniazid from the day of vaccination. Three children of this group became Mantoux positive. In all of the eight children, however, skin biopsy displayed epithelioid cell infiltration of the dermis but absence of caseation and giant cell formation.

The third group received both isoniazid and cortisone. Two became Mantoux positive and in the entire group biopsy demonstrated only nonspecific lymphocytic infiltration of the dermis.

These observations suggest that the inhibitory effect of isoniazid on the development of tuberculous lesions is further augmented by the administration of cortisone. S. J. SHANE

DERMATOLOGY

Multiple Primary Self-Healing Squamous-Cell "Epitheliomas" of the Skin; "Generalized Keratoacanthoma".

N. N. EPSTEIN, G. R. BISKIND AND R. S. POLLACK: *A.M.A. Arch. Dermat.*, 75: 210, 1957.

The authors review briefly the history of this condition as it was first described and reported in the dermatological literature. Keratoacanthomas are classified into two types—localized and generalized. This is a report on the generalized type. The latter is a rare condition beginning in adolescence or early adult life, and occurring more frequently in males. The tumours may number into the hundreds or thousands. There is usually spontaneous healing with some atrophic scar formation. Predisposing factors, such as sunburn or aging, are not present. There is frequently a family history. The disease may last many years and mucous membrane involvement has been reported. The histology is suggestive of a well-differentiated squamous cell carcinoma, but close examination shows only an irregular pseudoepitheliomatous hyperplasia with a central keratin core.

The patient presented was a 46-year-old white woman who between 1947 and 1956 developed 28 hard elevated tumours with a central keratotic core on all areas including two on the hard palate. Many were diagnosed as squamous cell carcinoma and treated with x-radiation before the true nature of the condition was realized. ROBERT JACKSON

Serodiagnosis with Antigens of Treponema pallidum in Lupus Erythematosus.

C. R. REIN, L. CHARGIN AND L. C. KELCEC: *A.M.A. Arch. Dermat.*, 75: 230, 1957.

There is a brief review of the serologic tests for syphilis including the newer specific tests (Treponema pallidum immobilization, Treponema pallidum agglutination, and Treponema pallidum complement fixation). The concept of the chronic and acute biologic false positive reaction to the nonspecific serological tests for syphilis is explained. The incidence of chronic biologic false positives is said to be about 6% in systemic lupus erythematosus and it also occurs with the hydralazine syndrome.

Of 79 patients with lupus erythematosus (46 discoid; 33 systemic) 35 gave positive serologic reactions with the standard tests. Only three gave positive reactions with Treponema pallidum immune adherence and Treponema pallidum complement fixation tests; and of these three, two had syphilis. ROBERT JACKSON

OBITUARIES

DR. W. J. P. MacMILLAN

We regret to announce the death of one of the grand old men of Prince Edward Island—grand in every sense of the word, for Dr. William Joseph Parnell MacMillan was a fine physician, a brilliant scholar, a statesman, and an outstanding citizen, to whom The Island he loved so much and indeed the whole of Canadian medicine are deeply in debt. Dr. MacMillan died on December 7, aged 77, scarcely a week before he was due to take office as Lieutenant-Governor of Prince Edward Island, an office that would have crowned a distinguished career but could hardly have added more to the esteem and love with which his many friends regarded him.

Dr. MacMillan was born in Claremont, P.E.I., on March 24, 1881. He received his education at Kensington High School, Prince of Wales College and McGill University, from which he graduated in 1908 as a Holmes Gold Medallist. Dr. MacMillan moved to Charlottetown in 1910, after having practised at Kincora for two years. He was on the staff of Charlottetown Hospital for nearly 47 years. He held several important positions in the local and provincial medical associations and was a member of the Executive Committee of the Canadian Medical Association for 22 years.

Dr. MacMillan was a health officer for several years and became interested in politics through this aspect of his professional activities. He was first elected in 1923 and served in the provincial legislature for 28 years, being Acting Premier in 1923 and Premier from 1933 to 1935. He was subsequently leader of the opposition, and eventually resigned in order to devote more attention to the building program of the local hospital. Dr. MacMillan was the first Minister of Education for Prince Edward Island and also the first Minister of Public Health. With the help of such generous philanthropists as Dr. F. Kepel, he was able to stimulate remarkable improvements in both education and public health in the province. The building of Prince of Wales College, Charlottetown, in 1932, was one of his many achievements. Dr MacMillan was the last surviving member of the Prince Edward Island Division of the Canadian Red Cross Society of 1914, and had 43 years' service with this organization.

Among the many appointments held by Dr. MacMillan were staff appointments to Charlottetown Hospital and Prince Edward Island Hospital, membership in the Medical Council of P.E.I. (for 40 years), presidency of the P.E.I. Medical Association 1914, Superintendent of Falconwood Hospital 1916-19, radiologist to Charlottetown Hospital 1914-24, membership in the P.E.I. Tuberculosis Society for 46 years, Charlottetown School Board 35 years, and presidency of the provincial Cancer Society.

Dr. MacMillan is survived by his widow, the former Letitia MacDonald; three sons, Dr. Allan MacMillan and Mr. Stephen MacMillan of Charlottetown, and Mr. Joseph MacMillan of Goose Bay, Labrador; and three daughters, Mrs. C. St. Clair Trainor and Mrs. Alban Farmer, of Charlottetown, and Mrs. H. B. Bohan of Smyrna, Georgia.

Dr. W. J. P. MacMillan

DR. W. J. P. MacMILLAN

An Appreciation

It has been the good fortune of Canadian medicine to produce great leaders and noble men. A man of nobility and an outstanding leader both in his own community and in Canada as a whole—such a man was Dr. W. J. P. MacMillan.

Endowed with a keen intellect, a brilliant mind and a fluent and erudite speech, he enhanced these natural qualities at the university and in the public arena. As family doctor, surgeon, administrator and executive he gave to his profession and his practice generously and wisely.

As public figure, politician, philanthropist and social leader, he was unequalled in his time, and his native province which he loved and publicized always received his loyalty and enthusiastic support.

To his family, his son Dr. Alan, his confrères offer their sincere sympathy and the tribute of their gratitude in knowing and working with one of nature's greatest men.

No tribute could omit the personal thanks of those who, favoured with Dr. MacMillan's more intimate association, drew from him inspiration and admiration. Such friends hope some of his greatness may have been passed on to them lest they feel the loss of so much at one time.

J.A.M.

DR. ELLIS NEIL EAST, 44, physician and surgeon of Winnipeg, died suddenly on November 24. He was born in Islay, Alta., and graduated from the University of Alberta in 1938. The following ten years he practised at Qualicum Beach, Vancouver Island, and Victoria, B.C. He did postgraduate work at New York Post-Graduate Medical School, the University of Michigan Medical School, Ann Arbor, the University of Toronto, Harvard Medical School, Boston, and the

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Winnipeg General Hospital. At the time of his death Dr. East was on the staff of the Department of Medicine of the Manitoba Clinic and was also on the staff of the Winnipeg General Hospital, the Misericordia Hospital and the Children's Hospital. He was a lecturer at the University of Manitoba.

He became a Fellow of the Royal College of Physicians in 1952, was a member of the Canadian Heart Association and the American Heart Association, and was an associate of the American College of Physicians.

He is survived by his widow, a son and a daughter.

DR. BENJAMIN EDWARD MEEK, 49, died in Toronto on November 1. He was senior attending surgeon, Department of Gynæcology and Obstetrics, at Toronto East General Hospital and was formerly associated with St. Michael's Hospital. Dr. Meek was born in Port Rowan and graduated from the University of Toronto in 1932. The following six years were spent in postgraduate work in Great Britain and in Europe. Dr. Meek was a Fellow of the Royal College of Obstetricians and Gynæcologists, England.

He is survived by his widow, two sons and two daughters.

DR. JAMES HEBERT TANDY, 80, died at Toronto, Ont., on November 14. He was born at Kingston, Ont., and was educated at Queen's University where he graduated with an honours arts degree in 1900 and won the gold medal in medicine in 1904. He interned in Kingston and then went to England. On his return to Canada he practised in Parry Sound before settling in general practice in Toronto. Dr. Tandy was medical officer for the Toronto Transportation Commission for 30 years and retired from this position 10 years ago.

He is survived by his widow and two daughters.

DR. ROBERT WERDEN TENNENT, a physician at Belleville, Ont., died suddenly on November 7. He was born in Belleville and graduated from Queen's University, Kingston, Ont., in 1905 and returned to Belleville to practise. In 1915 he joined the R.A.M.C. and served overseas with the Imperial Army. On his return to Canada in 1917 he resumed his practice in Belleville. He was an honorary member of the medical staff of the Belleville General Hospital and for many years was physician at the Ontario School for the Deaf, and also doctor for Canadian National Railways.

He is survived by his widow.

DR. EVERETT ONSLOW THOMAS died early in November at his home in St. Stephen, N.B., aged 80 years. He was born at Waweig, January 18, 1877, and was a graduate of Tufts College, Boston. Dr. Thomas served in the C.A.M.C. in World War I in England and France. On his return to Canada his service took him to Halifax, after the explosion in that city. On discharge from the army he began general practice in St. Stephen and Calais, Maine, specializing in x-ray diagnosis.

Dr. Thomas was a member of the St. Croix Medical Society and the New Brunswick Medical Society and was a senior member of the Canadian Medical Association.

He is survived by his widow.

PROVINCIAL NEWS

BRITISH COLUMBIA

Dr. H. E. Taylor, professor and head of the department of pathology at the University of British Columbia, has been elected a Fellow of the Royal College of Physicians of Edinburgh. Dr. Taylor is a graduate of Dalhousie University.

ALBERTA

A meeting of the Alberta Thoracic Society was held in Red Deer on November 24. The following papers were heard: (1) Treatment of bronchogenic carcinoma, and a review of the results of the Edmonton Cancer Clinic, by Dr. Donald Dick, director, Edmonton Cancer Clinic. (2) Establishing cardiac surgery in non-university cities, by Dr. Lawther Logan, member of the Calgary Cardiac Surgery Assessment Committee. (3) Discussion on some aspects of pulmonary function, by Dr. Morley Tuttle, chief of medicine, Colonel Belcher Hospital, Calgary.

The Alberta Doctors' Annual Bonspiel was held in Medicine Hat on Friday and Saturday, November 1 and 2, with twenty-four rinks in attendance. The furthest community represented was Peace River. The McBride Trophy was won by Dr. Gordon McQueen of Calgary, the other members of his rink being Drs. W. G. Jensen, J. O. Anderson and M. S. Miller, all of Calgary. They defeated the Bradley rink of Wainwright in the finals. Numerous social events accompanied the curling and more than sixty wives were present. The occasion wound up on the night of November 2 with a banquet and presentation of prizes, followed by a dance.

The next major curling event is the Doctors' Interprovincial Bonspiel which will be held in Saskatoon in April 1958. This is open to all doctors from the prairie provinces.

During October, Dr. George Miller, Associate Professor of Medicine, University of Buffalo, addressed the Medical Faculty of the University of Alberta on medical education. W. B. PARSONS

SASKATCHEWAN

On November 13, Dr. L. C. Marsh, Lecturer in Humanities, Faculty of Medicine, and Director of the Research School of Social Work, University of British Columbia, visited the College of Medicine in Saskatoon to speak on "Medicine and the social sciences".

Planning for a new 14-bed hospital which it is estimated will cost $110,000 is under way in Hudson Bay, Saskatchewan. The present hospital will be put to use as a nurses' residence, furnace room and storage space.

The administrative staffs for General and Grey Nuns' hospitals in Regina have curtailed visiting. Because of the prevalence of influenza, only immediate families of seriously ill patients will be admitted to hospital rooms until further notice. G. W. PEACOCK

MANITOBA

Dr. A. C. Wallace, Associate Professor of Pathology, University of Manitoba, addressed the Scientific Club of Winnipeg on November 12, on studies on the transplantability of tumours.

October 6 to 10, 1958, will be significant days in the history of Manitoba medicine. In that period will be celebrated (1) the 75th anniversary of Manitoba Medical College, now the Faculty of Medicine, University of Manitoba, (2) the annual meeting and fiftieth anniversary of the Manitoba Medical Association, (3) the formal opening of the large north wing of the Winnipeg General Hospital, (4) a meeting of the Winnipeg General Hospital Medical Alumni Association.

Dr. J. B. Morison, Winnipeg deputy medical health officer, has been presented with a $500 travelling award for study in geriatrics. The award came from the National Council of Jewish women.

Dr. Laszlo J. Gregory has been appointed to the medical staff at Brandon Sanatorium. He is a graduate of the Royal University of Hungary and came to Canada from Australia and New Guinea in 1956. He replaces Dr. Stephen Kovacs, who has left to be an intern at Misericordia Hospital.

Dr. Alvin Zipursky of the University of Manitoba department of pædiatrics has been awarded a grant of $15,600 by the Playtex Park Research Institute. Dr. Zipursky since leaving Winnipeg has studied at the University of Utah and at Cincinnati. The grant will be applied to a three-year period of research into certain aspects of red blood cell metabolism in a large variety of conditions in newborn infants.

The 49th annual meeting of the Manitoba Medical Association was held in the Royal Alexandra Hotel, Winnipeg, October 15-18. The guest speakers were Dr. M. A. R. Young, President of the Canadian Medical Association; Dr. H. B. Atlee, Dalhousie University, Halifax; Dr. J. W. Gerrard, University of Saskatchewan, Saskatoon; Dr. R. C. Harrison, University of Alberta, Edmonton; and Mr. L. W. Holmes, Assistant Secretary (Public Relations), Canadian Medical Association, Toronto. On the evening of October 16 Dr. M. R. MacCharles, President of Manitoba Medical Service, presented an able report of the activities both of the Manitoba organization and of Trans-Canada Medical Plans. There was a good scientific exhibit and an interesting collection of hobbies pursued by members of the association.

Dr. Morley S. Lougheed, former medical health officer in Winnipeg, was elected a vice-president of the American Public Health Association at its annual meeting in Cleveland.

ROSS MITCHELL

ONTARIO

The College of Physicians and Surgeons of Ontario has announced that on and after April 13, 1958, applicants for registration to practise medicine in Ontario who have obtained their enabling certificates elsewhere will be required to present evidence that the enabling certificate requirements of the College of Physicians and Surgeons of Ontario have been complied with.

Dr. R. F. Farquharson, head of the Department of Medicine in the University of Toronto, has been named director of the Division of Medicine in the National Research Council. He succeeds Dr. J. B. Collip, Dean of Medicine at the University of Western Ontario, who has retired.

The Ontario Association of Pathologists held their twentieth annual meeting in Toronto on October 17, 18 and 19. The new president for the season 1957-58 is Dr. L. C. Fischer of Kitchener, and the secretary-treasurer, Dr. T. C. Brown of Toronto. At the scientific session Dr. J. L. Blaisdell described two cases of primary Hodgkin's disease of the lung simulating bronchial carcinoma and tuberculosis respectively. Drs. M. J. Lynch and S. S. Raphael of Sudbury produced evidence for the microaneurismal nature of the lesions in Kimmelstiel-Wilson disease. Dr. M. B. Haust of Kingston described extensions of his studies in arteriosclerosis to the coronary arteries. Dr. E. A. Linell of Toronto noted the importance of apparently minor trauma to cerebral arteries in the production of thrombosis. Dr. J. H. Fisher of London reviewed 15 cases of the rare neoplasm, hæmangiopericytoma. Dr. L. S. Mautner of Toronto presented a paper describing two cases of carcinoma in the gastric stump after resection for peptic ulcer.

At the afternoon session, Dr. H. Z. Movat of Kingston described studies on the significance of the various cells in local hypersensitivity, and Dr. J. B. McKay of Toronto commented on neoplastic and neoplasm-like lesions of the endometrial stroma. Dr. S. S. Raphael of Sudbury brought forward evidence to show that the Kimmelstiel-Wilson lesion is not absolutely specific for diabetes. Dr. J. S. Campbell of Ottawa mentioned five cases of congenital subglottic hæmangioma in infancy in which recurrent and often sudden respiratory obstruction had been relieved by tracheotomy. Dr. W. Anderson of Toronto described pathological changes in degeneration of the supraspinatus tendon and the subacromial bursa.

The annual dinner of the Association was held at the King Edward Hotel on October 18, and next morning there was a seminar on pædiatric pathology.

Dr. Donald C. Balfour, a graduate in medicine of the University of Toronto and currently Emeritus Director of the Mayo Foundation, has been awarded a hand-illuminated certificate designating him as an honorary life-member of the Medical Alumni Association of the University of Toronto. The presentation was made to him on October 23, 1957, in recognition of his distinguished career and outstanding contributions to the science and practice of medicine.

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QUEBEC

The National Cancer Institute has granted two Fellowships to medical graduates of McGill University and the University of Montreal, for specialist studies outside Canada. The recipients are Dr. G. Bernard Skinner of McGill and Dr. Pierre Chalut of the University of Montreal. Dr. Skinner, a son of Dr. George Skinner of Saint John, N.B., obtained his B.Sc. at McGill in 1950 and his M.D.C.M. in 1954. He is specializing in radiology at the Royal Victoria Hospital. Commencing July 1 next, he will spend six months in London, England, and six months at various centres on the continent, returning to Montreal to complete his diploma course.

Dr. Chalut graduated in medicine at the University of Montreal in 1953 and has been active in the department of anatomy at the university. He will spend the year training in abdominal surgery at the Lahey Clinic in Boston.

Dr. Heinz E. Lehmann, clinical director, Verdun Protestant Hospital, has been named winner of the 1957 Albert and Mary Lasker award of the American Public Health Association for outstanding medical research and achievement. The award, valued at $2500, was given for "his demonstration of the practical uses of chlorpromazine on individuals and groups in the treatment of mental and nervous disorders". He and his associates pioneered in the uses of the tranquillizing drugs on this continent and we are happy that he has been honoured with this well-merited award.

Dr. Charles A. Roberts, formerly of the Department of National Health and Welfare, Ottawa, has been appointed medical superintendent of Verdun Protestant Hospital. He is the fourth superintendent since the hospital was founded in 1881, and succeeds Dr. George E. Reed, who retired last spring. Dr. Roberts is a Newfoundlander and received his medical training at Dalhousie University. He served in the R.C.A.M.C. from 1942 to 1945. He was named chief of the Mental Health Division, Ottawa, in July 1951, and four years later was made principal medical officer.

The fifth annual meeting of the Forensic Society of Canada was held at the Sheraton-Mt. Royal Hotel in Montreal on November 7, 8 and 9. More than 50 delegates from across Canada, as well as representatives from France, Italy and Iran, attended. Nineteen scientific papers were presented, which included an address by A. M. Hendrick of the R.C.M.P.'s Sackville laboratory, Dr. J. Roussel and B. Peclet of Montreal's medico-legal laboratory, and Leo Dal Cortivo of the New York Medical Examiners laboratory. At the conclusion of the three-day convention, the society elected Dr. C. G. Farmilo, president; Dr. H. W. Smith, first vice-president; Dr. Roussel, second vice-president; Dr. H. N. MacFarland, secretary; and Dr. B. B. Coldwell, treasurer.

Former members of the 14th Canadian General Hospital, R.C.A.M.C., held a gay remembrance reunion on Saturday evening, November 9, at the Lacombe Armoury Officers' Mess. The hospital unit went overseas in 1941, stayed two years in England and then sailed for Italy. The U.S. ship *Santa Elena*, on which they sailed, was two days through the Straits of Gibraltar and 40 miles north of the North African coast, on November 6, 1943, when it was attacked and sunk by German aerial torpedoes. Members of the hospital unit have held an annual reunion since 1945.

A most instructive and interesting panel discussion was held in the auditorium of Queen Mary Veterans Hospital on Friday evening, November 15. The program was arranged by the Montreal Medico-Chirurgical Society and invitations were extended to all members of the Quebec Division of the C.M.A. The subject was the future of health insurance in Canada. The moderator was the President of the Society, Dr. Walter deM. Scriver, and the panelists were Mr. Andy Andras, Director of Legislation and Government Employees of the Canadian Labour Congress, Ottawa; Dr. Malcolm G. Taylor, Associate Professor of the Department of Political Economy at the University of Toronto; Dr. William Lougheed, Consultant Economist, Toronto; and Dr. A. D. Kelly, our General Secretary. The speakers presented very eloquently the views and aims of the various interested parties. The basic fundamentals of health insurance from our point of view were very well upheld. The auditorium was filled to capacity.

Plans for the next annual meeting of our Division are well under way. This will again be held at the Chantecler, Ste-Adèle-en-haut, on May 1, 2 and 3. The tentative scientific program that is being prepared under the guidance of Dr. S. A. MacDonald, chairman of the Program Committee, looks as if it probably will surpass in interest for the general doctor anything that we have had before. All the committees have been named and are actively engaged in planning for a successful meeting.

A regional two-day scientific meeting was held in Chicoutimi in the middle of December. Dr. Sylvio LeBlond from Chicoutimi, the local representative on the Executive Committee of the Division, arranged this meeting. Several of our Montreal colleagues actively participated. A similar and very successful meeting was held there some three years ago and at the present meeting this success was repeated.

A. H. NEUFELD

NEW BRUNSWICK

Dr. G. W. A. Keddy of Saint John received from the Governor-General the decoration of Commander Brother in the St. John Ambulance at an investiture in Ottawa.

Dr. G. E. Gauvin, Superintendent of St. Joseph's Sanatorium, St. Basile, for the past 25 years, received a gift of silver from the staff of the hospital and the Madawaska Medical Society to celebrate this anniversary.

Sponsored by the Post-graduate Department of Dalhousie University and the N.B. Medical Society, the following extramural lectures were presented:

At Moncton—Dr. Robert L. Aikens, Professor of Medicine, Dalhousie University: Differential diagnosis of chest pain.

At Saint John—Dr. C. E. van Rooyen, Professor of Bacteriology, Dalhousie University: Modern concept of virus disease.

At Vallée Lourdes Sanatorium—Dr. O. J. White, Orthopædic Surgeon, Moncton: (1) Fractures of the upper limb, (2) Traumatic injuries of the hand.

Dr. A. Robichaud of Tracadie was elected President of the Medical Council of New Brunswick at the annual meeting held in Saint John.

The Hon. J. McInerney, M.D., Minister of Health for New Brunswick, has announced the promotion of Dr. H. A. Bird from Assistant Director to Director of the Provincial Laboratories at Saint John, to fill the vacancy left by the death of Dr. R. A. H. Mackeen, the previous director. Dr. I. A. MacLennan of Moncton has been named Associate Director of Laboratories. He will continue as Director of the Provincial Laboratory in Moncton.

A. S. KIRKLAND

NOVA SCOTIA

The Dalhousie University Faculty of Medicine presented the 31st Annual Refresher Course, under the chairmanship of Dr. C. M. Kincaide, from October 7 to October 11.

The program drawn up by the Refresher Course committee was an excellent one and covered a wide variety of subjects. There were five guest speakers on the program: Dr. Earl P. Scarlett of Edmonton; Dr. Irwin M. Hilliard, Professor of Medicine, University of Saskatchewan; Dr. H. Rocke Robertson, Professor of Surgery, University of British Columbia; Dr. Albin T. Jousse of Toronto; and Dr. John Mann, Associate Professor of Obstetrics and Gynæcology, University of Toronto. The attendance at this year's Refresher Course was smaller than in previous years. It was hard to find a cause for this; the weather was excellent and motoring conditions could not have been improved upon.

The John Stewart Memorial lecturer at this year's Refresher Course was Dr. Earl P. Scarlett, Chancellor of the University of Alberta. This yearly lecture was originated by and is sponsored by the Provincial Medical Board of Nova Scotia. The title of the address was "The Dance of Death". This title was most intriguing and the average listener wondered how the speaker could develop such a topic and make it interesting, but Dr. Scarlett did just that. Delivered in a cultured and scholarly manner, and aided by a great many camera slides of the early physician, together with some of the great masters' interpretations of death, an interesting lecture was brought to a close far too soon.

The Western Nova Scotia Medical Society has inaugurated a postgraduate course which will run for a period of six weeks at the Yarmouth Hospital. The course is sponsored by the Postgraduate Division of the Faculty of Medicine, Dalhousie University, and the speakers are drawn from the Halifax and Saint John areas. Among the Halifax group who will be journeying to Yarmouth to lecture will be Dr. H. H. Tucker, Dr. H. C. Read, Dr. J. Hammerling, Dr. A. E. Doull, Dr. W. G. Colwell, Dr. N. B. Coward, Dr. R. L. Aikens and Dr. E. P. Nonamaker.

A memorial has been erected in honour of Sir William Dawson, educator and geologist, at Pictou. This fine memorial stands on Church Street on the site of his birthplace and bears a plaque which lists the principal achievements of his long life. The unveiling ceremony was performed by Dr. H. L. Scammell of Halifax, President of Pictou Academy Educational Foundation. On this occasion an address was delivered by Dr. Scammell to the students of Sir William Dawson School.

Dr. John C. Wickwire of Liverpool, N.S., has been appointed as Governor for the Province of Nova Scotia in the American College of Cardiology.

WALTER K. HOUSE

PRINCE EDWARD ISLAND

A special meeting of the Prince Edward Island Division of the Canadian Medical Association was held in Charlottetown at the Charlottetown Hotel on November 21. Dr. H. H. Tucker, neurosurgeon, of Halifax, spoke to a good audience of medical members on treatment of abnormal head shapes in infancy. Dr. Tucker, who is a very fluent and personable speaker, brought the profession up to date on some of the newer methods of handling the problems associated with diseases which are reflected in abnormal head shapes. Before the clinical presentation, a great number of business matters were discussed and resolutions were passed covering most of the matters which were brought up by the Executive.

The Prince Edward Island Division then went on to study the brief which they will present to the Citizens' Committee on Health Insurance in the Province, outlining the thoughts and problems of perfecting the practice of medicine under the legislation and regulations involved in Bill 320, passed this year in Ottawa. Dr. J. H. Maloney, Vice-President of the Association, was presiding officer.

The Annual Meeting of the Prince Edward Island Medical Society was held at the Officers' Mess, R.C.A.F. Station, Summerside. The main business of the meeting concerned the suggestion of the Medical Society that a medical rehabilitation program be initiated on the Island. It is felt that this project should be carried on under the ægis of the Department of Health and initially should be available to children under 16 years of age. A medical assessment board could be used to determine the status of patients being admitted. It was also suggested that the orthopædic centre which had been concerned mainly with poliomyelitis now be changed to that of a rehabilitation centre. After the business session Dr. Robert L. Aikens, Assistant Professor of Medicine at Dalhousie University, spoke very informatively on the differential diagnosis of chest pain.

Dr. Malcolm J. Putnam, F.R.C.S., formerly of Brockville, has joined the staff of the Polyclinic at Charlottetown. Dr. Putnam was born in Vancouver, is a graduate of McGill University, and has been living on Prince Edward Island for many years.

J. A. MCMILLAN

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NEWFOUNDLAND

Staff activities of the General Hospital are again in full swing with the beginning of the fall quarter. This includes the regular meetings of the executive and its committees, as well as the business and clinical meetings of the various departments of the hospital and other educational conferences. The hospital now has a total bed capacity of over 450 including the Orthopædic and Fever Hospital sections, and is organized into departments of Medicine; Surgery; Pædiatrics; Anæsthesia; Orthopædics; Pathology; Ear, Eye, Nose and Throat; and Diagnostic and Therapeutic Radiology. The members of each of these divisions gather once a month to discuss clinical and administrative matters pertaining to their specialty. In addition to this, the departments of medicine and surgery also conduct weekly conferences on Mondays and Fridays, at which clinical topics and particular clinical cases are presented; these are intended to provide teaching for the resident staff and to promote better patient care by giving an opportunity for consultation with the entire staff. A weekly clinico-pathologic conference is held on Wednesdays, under the auspices of the department of pathology. These, as well as all other clinical assemblies at the hospital, are open to all members of the profession, and out-of-town physicians are particularly welcome.

The hospital staff are proud of the increasing responsibility which they have been able to assume for the training of interns and residents. The hospital has been fully accredited by the Joint Committee on Hospital Accreditation for many years, and since 1950 has provided a recognized year of junior rotating internship. This year also fulfils the requirements for the pre-registration year for students from Great Britain. Postgraduate training in pathology and anæsthesiology has been available here for several years, and in 1956 the Royal College of Physicians and Surgeons of Canada gave approval for one year's training in the specialties of general surgery, internal medicine, pathology and bacteriology, and in diagnostic radiology. It is hoped that this will lead to the development of a full course of training leading to certification in several of the clinical and diagnostic departments.

At the present time the hospital has almost a full complement of house staff. There are 13 intern and 9 resident posts. The interns rotate through the various departments of the hospital, spending a minimum of three months each in surgery and medicine, and two months in obstetrics and pædiatrics. The period of obstetrical rotation is taken at the Grace Hospital. There are two residents in surgery, two in pathology, three in anæsthesiology, and one each in internal medicine and orthopædic surgery. The teaching program for the resident staff includes the several weekly clinical conferences of the various departments of the hospital, as well as a weekly seminar under the chairmanship of one of the members of the visiting staff at which common clinical problems are discussed. A lecture course in the interpretation of x-ray films is given each fall and winter in the department of radiology. A high autopsy rate is maintained.

The majority of the house staff come from the British Isles, several of them completing their pre-registration year. The hospital also has an arrangement with Dalhousie University whereby six interns each year obtain the surgical and medical portion of their rotation here. This year, for the first time, the hospital has welcomed two interns from the University of British Columbia; it is hoped that this happy association will continue and that similar connections may be established with other medical schools across the country.

Dr. John G. Williams recently terminated his staff appointment at the Hospital for Mental and Nervous Disease and has begun private practice in St. John's in the specialty of neurology and psychiatry. His office is at 9 Monkstown Road. Dr. Williams is a Dalhousie graduate and also did his postgraduate work at Halifax. He received his certification from the Royal College in 1956.

Meeting at Swift Current: A "first" in Newfoundland medical doings occurred during the last week of October when a regional meeting of the Dalhousie Refresher Course was held in Swift Current. These clinical meetings have been conducted for several years at the larger centres of Corner Brook, Grand Falls, and St. John's. On this occasion Swift Current was included in the itinerary with the intention of providing a convenient assembly-point for the physicians at Clarenville, Come-by-Chance, the Burin peninsula, and the Trinity and Bonavista Bay areas generally. This first meeting was attended by the Minister and the Deputy Minister of the provincial Department of Health. It is planned to make this a regular event.

Guest speaker at this convention was Dr. Ian McNab, of the Department of Orthopædic Surgery of the University of Toronto. Dr. McNab also visited St. John's, Grand Falls, and Corner Brook, giving a refresher course on low back pain, shoulder pain, and other orthopædic topics. In St. John's he addressed the Department of Surgery of the General Hospital, and also the St. John's Clinical Society.

Personal News: Dr. James Dickson of Glasgow has recently taken up practice at St. Mary's Bay, with his residence at St. Joseph's. Dr. Wilfred Evans, formerly Medical Officer on the M.V. *Lady Anderson*, has been working at Burgeo since July. A new arrival in Newfoundland is Dr. William G. French of Aberdeen, Scotland, who will be in practice at Port-au-port. Dr. French had several years of experience in general practice in the British Isles before coming here, and also served in the R.A.F. Dr. Brian Harris has finished a locum at Bell Island and moved to Come-by-Chance Hospital. Dr. William Jack has left Hermitage and will be in charge of the Cottage Hospital at Fogo. Dr. Terence Jolly and his wife have recently arrived at Eastport, Bonavista Bay. A native of Northern Ireland, Dr. Jolly has been in the British Colonial Medical Service for several years, including a tour of duty in the Fiji Islands. Dr. John Noble has left Newfoundland to take up practice in Saskatchewan. His position as Superintendent of the Burin Cottage Hospital will be taken by Dr. John Goggin. Dr. Robert Potter from the United States has come to the Grenfell Hospital at St. Anthony, replacing Dr. Gordon Thomas who is doing postgraduate work in Stockholm. Dr. J. B. Wilson has begun practice in Bell Island. He has been at Goose Cove, Trinity Bay, for the past few years.

A. J. NEARY

CANADIAN ARMED SERVICES

Colonel A. L. Kerr, Command Medical Officer, Central Command, Group Captain D. G. M. Nelson, Commanding Officer of the Institute of Aviation Medicine, and Group Captain E. O'F. Campbell, Specialist in Internal Medicine at R.C.A.F. Hospital, Rockcliffe, were invested as Serving Brothers to the Venerable Order of the Hospital of St. John of Jerusalem at an investiture held at Government House, Ottawa, on October 21, 1957. At the same time, Brigadier S. G. U. Shier, Director General Medical Services (Army), an Officer Brother in the Venerable Order of St. John of Jerusalem, was promoted to the rank of Commander Brother.

Surgeon Lieutenant Commander D. A. Maciver, R.C.N., who has been serving in H.M.C.S. *Labrador*, has been appointed as Chief of Surgery, R.C.N. Hospital, Halifax, Nova Scotia.

Colonel E. H. Ainslie, C.D., R.C.A.M.C., served as medical officer in attendance to Her Majesty Queen Elizabeth II on the recent state visit to Canada and the United States.

FORTHCOMING MEETINGS

CANADA

COLLEGE OF GENERAL PRACTICE OF CANADA, Second Scientific Assembly, Winnipeg, Man. (Dr. W. V. Johnston, Executive Director, College of General Practice of Canada, 176 St. George St., Toronto 5, Ont.) April 14-16, 1958.

CANADIAN OTOLARYNGOLOGICAL SOCIETY (SOCIÉTÉ CANADIENNE D'OTOLARYNGOLOGIE), Annual Meeting, Halifax, N.S. (Dr. Donald M. MacRae, 324 Spring Garden Road, Halifax, N.S.) June 9-11, 1958.

CANADIAN TUBERCULOSIS ASSOCIATION, 58th Annual Meeting, Quebec City, P.Q. (Dr. G. J. Wherrett, Executive Secretary, Canadian Tuberculosis Association, 265 Elgin St., Ottawa 4, Ont.) June 9-12, 1958.

CANADIAN MEDICAL ASSOCIATION, 91st Annual Meeting, Halifax, Nova Scotia. (Dr. A. D. Kelly, General Secretary, The Canadian Medical Association, 150 St. George Street, Toronto 5, Ont.) June 15-19, 1958.

INTERNATIONAL FEDERATION OF GYNECOLOGY AND OBSTETRICS, 2nd Congress, Montreal, P.Q. (Professor Léon Gérin-Lajoie, Suite 313, 1414 Drummond Street, Montreal, P.Q.) June 22-28, 1958.

10TH INTERNATIONAL CONGRESS OF GENETICS, Montreal, P.Q. (Mr. J. W. Boyes, General Secretary, 10th International Congress of Genetics, McGill University, Montreal, P.Q.) August 20-27, 1958.

UNITED STATES

AMERICAN ACADEMY OF GENERAL PRACTICE, Annual Meeting, Dallas, Texas. (Mr. Mac F. Cahal, Executive Secretary, Volker Boulevard at Brookside, Kansas City 12, Mo.) March 24-27, 1958.

INTERNATIONAL SOCIETY OF GASTROENTEROLOGY, 3rd World Congress, Washington, D.C. (Dr. H. M. Pollard, University Hospital, Ann Arbor, Michigan.) May 25-29, 1958.

AMERICAN MEDICAL ASSOCIATION, Annual Meeting, San Francisco, California. (Dr. George Lull, 535 North Dearborn Street, Chicago 10, Ill.) June 23-27, 1958.

BOOK REVIEWS

UNDERWRITING CANADIAN HEALTH. An Economic View of Canadian Welfare Programs by William Lougheed Associates published in 1957 by the Canadian Life Insurance Officers Association, Toronto, and the Canadian Chamber of Commerce, Montreal, 1957. 165 pp.*

"The crucial point about financing health care is not who is going to pay for it or whether the underwriting is best handled by private or public bodies or a combination of both, but how much health care the nation as distinct from the individual can afford in relation to the other good uses to which productive resources can be put."

". . . by 1980, if present trends could continue, some 45% of total government outlays would be for health or social welfare, compared to about 26% in 1955."

The foregoing quotations taken from the report of the Lougheed Associates on underwriting Canadian health and welfare are worthy of consideration by all responsible Canadian citizens. Statistics are not always easy of assimilation, but Lougheed shows very clearly the mounting costs of health care and many of the problems which have had to be faced in meeting these costs in Canada. Furthermore he points out that in the United Kingdom the costs of health care have shown a tendency to increase without reaching a stationary plateau. He states that in 1942, Sir William Beveridge estimated that the proposed national health service in Britain would cost £170,000,000 a year. The figure expected for the fiscal year ending March 31, 1958, is £690,000,000, nearly two and a half times the Beveridge estimate after allowing for changes in population and prices since 1942. The broad question facing the Canadian people is how far we as a nation can go in syphoning off from the national product the costs of health care of all our citizens. It may be argued that no matter what it costs it is a bill which must be paid as the first charge against the earning power of the individual or the nation, but there comes a point, according to the authors, beyond which it may not be economically sound or safe for a nation to go in its welfare expenditures. In other words, the over-all welfare program of the country must bear a proper relationship to the over-all tax-paying abilities of its citizens.

Readers who are interested not only in financing their health care but in their position as tax-paying citizens will find the report interesting and informative. Whether or not one agrees with the deductions and conclusions of the authors is beside the point. It is the part of wisdom in this age of expansion of welfare services for all citizens to become thoroughly informed on the implications costwise and otherwise of such programs. Lougheed and his associates have performed a service in this field.

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*A copy of the report may be obtained without charge by writing to the Canadian Chamber of Commerce, 530 Board of Trade Building, Montreal, Quebec, or the Canadian Life Insurance Officers Association, 302 Bay Street, Toronto, Ontario.

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CURRENT THERAPY. 1957. Latest Approved Methods of Treatment for the Practicing Physician. Edited by Howard F. Conn. 731 pp. Illust. W. B. Saunders Company, Philadelphia, 1957. $11.00.

Nowhere in medicine is the divergence of views originating in the different medical schools greater than in the realm of therapeutics — a state of affairs reflected in this volume. Only three contributors are from outside the U.S.A., but even in these circumstances, unitarian views are not invariable; where controversy was too obvious several authors contribute on one topic with subsections covering each major trend (see, for instance, the chapter on the treatment of diabetic coma). The general approach of the book is conservative. In the preface the editor points out that although many changes were brought to the previous edition, there is a good deal of material that is unchanged — "This latter information we feel to be almost as important as the new developments, because the conscientious physician wants assurance that what he is doing, regardless of how long he has been doing it, is the best that can be done today." This attitude alone would serve to recommend the book.

This treatise is remarkably up to date. References can be found to meprobamate, antidiabetic sulfonamide compounds and similar recent innovations in therapeutics. However, the chapter on barbiturate intoxication makes no mention of megimide, and that on aplastic anæmia says very little about intramedullary marrow infusions after exposure to radiation. The latter is probably too recent and likely to be considered in the experimental stage still. Inert powders such as kaolin and bismuth, long a standby in the treatment of acute diarrhœa, are rapidly losing ground, being described as "not necessary or of particular value". The use of chlorpromazine is advocated in severe hiccup. The artificial kidney is barely mentioned in acute renal failure, and no great enthusiasm is shown for it. However, it is recommended in another section for the treatment of the occasional case of barbiturate poisoning with or without lower nephron nephrosis. Most of the directives are clearcut; a great deal of common sense is found in recommendations on such chronic conditions as constipation. The closing remarks on the treatment of psoriasis with reference to the large number of drugs which have been tried for it show not only worldly wisdom but also a touch of humour.

This book gives the latest word on treatment of most of the commonly encountered conditions. It is recommended to all physicians in practice as a useful item in their reference library. Presentation of the current edition is similar to that of the previous ones.

BASIC NUTRITION. E. W. McHenry, School of Hygiene, University of Toronto. 389 pp. Illust. J. B. Lippincott Company, Montreal, 1957. $5.00.

This book on basic knowledge in nutrition and its practical application should fill a great need in Canadian medical literature. Although this information is well documented in various publications, this is the first time, to the reviewer's knowledge, that the material has been compiled in one volume. The book is very well arranged and indexed and should be an excellent source of reference. The subject matter is presented in an authoritative manner, with clarity and brevity, and covers the whole field of the science of nutrition.

First the author discusses hunger, appetite and nutrition requirements, methods of nutrition investigation, and energy requirements. Then he deals with carbohydrates, fats and proteins; the chemistry, occurrence, digestion and utilization are set forth in orderly and concise manner. Minerals and vitamins are discussed separately under the main headings of functions, requirements and sources. A section devoted to various special diets, dealing with principles, presents essential up-to-date information and timely comments. There is a chapter on the nutritive value of foods, with a discussion of the factors affecting food composition. The choice of foods, evaluation of nutritional conditions, and causes and prevention of malnutrition are covered. A comprehensive table of the composition of food in common household units is included in an appendix.

The reviewer can highly recommend this publication as a textbook for students of nutrition, and for physicians it is a book well worth reading for its concise compilation of present-day knowledge in this field. The book makes easy reading because of its clear and forceful style.

INTERNATIONAL CONGRESS OF GASTROENTEROLOGY. Fifth Meeting of L'Association des Sociétés Européenes et Méditerranéennes de Gastro-Entérologie, London, July 18-21, 1956. Edited by Harold Edwards, London, England. 634 pp. Illust. S. Karger, Basle and New York, 1957.

The Fifth International Congress of Gastroenterology was held in London, England, in June 1956. The present volume is divided into three sections; the first consists of papers on non-malignant conditions of the œsophagus, the second of short papers on various subjects, and the third is entirely on ulcerative colitis. In recent years, knowledge of the œsophagus has expanded greatly beyond the concept of mechanical conditions treated by the otolaryngologist. Several contemporary British surgeons deserve much credit for this renewed interest. Important contributions have resulted from the different approaches of the physiologist, the roentgenologist, the gastroenterologist and the surgeon to such problems as cardiospasm and hiatal incompetence.

The collection of papers on ulcerative colitis increases our knowledge concerning the natural history of this disease and the results of generally accepted therapeutic measures. It illustrates too the tremendous interest that has been maintained in this subject during the present century. Widely divergent views concerning the pathogenesis, the importance of psychological factors, and the value of sulfonamides and antibiotics and of steroids are presented with vigour and supported by experienced observers.

Papers on many diverse aspects of peptic ulcer and of hepatic and intestinal diseases are collected in section two. The specialty of gastroenterology still retains its vitality and the next copy of the proceedings will be awaited with enthusiasm.

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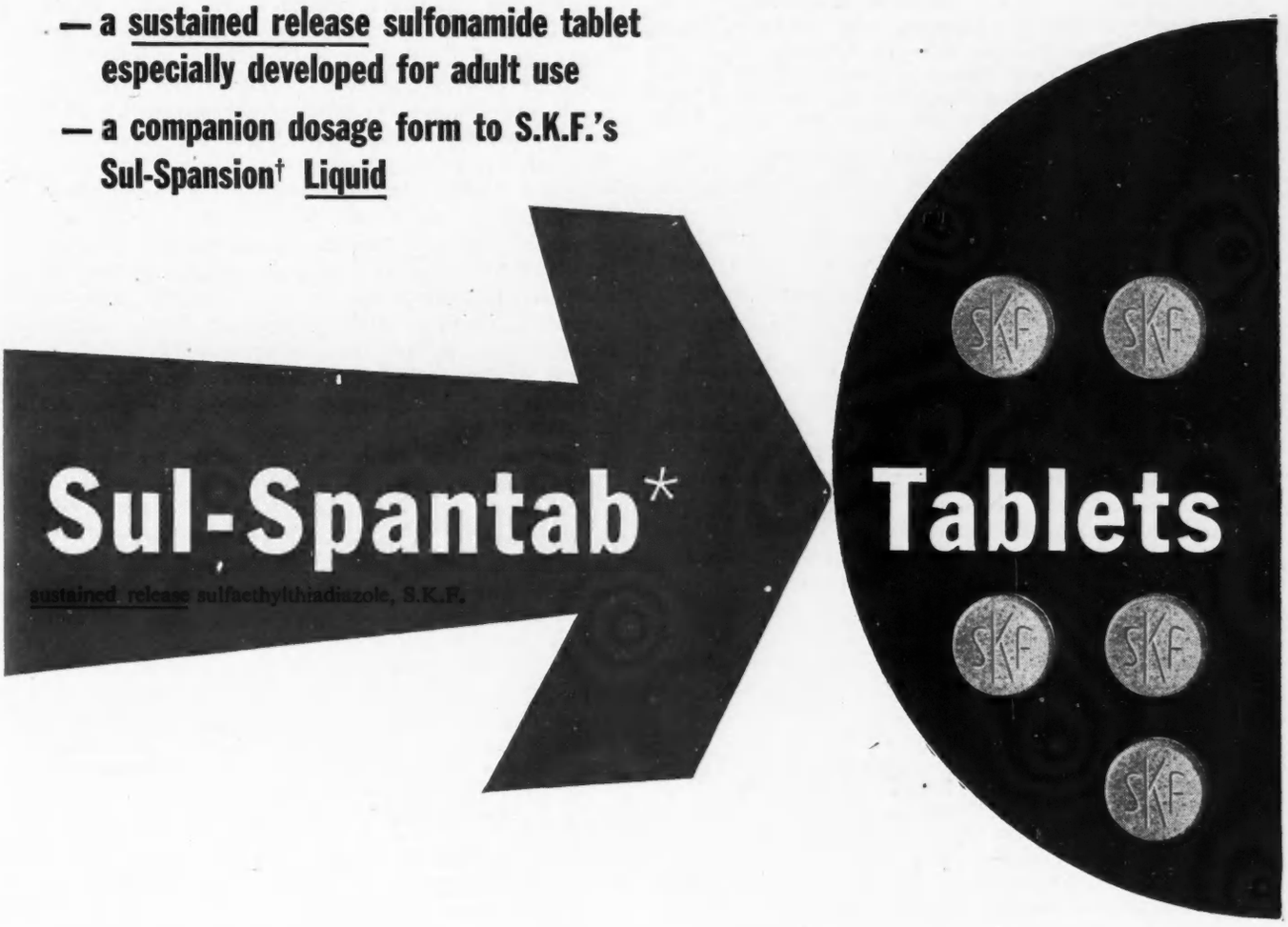

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BACTERIOLOGY (ZINSSER). David T. Smith, Professor of Microbiology and Associate Professor of Medicine, and Norman F. Conant, Professor of Mycology and Associate Professor of Microbiology, Duke University School of Medicine, with Joseph W. Beard, Hilda Pope Willett, John R. Overman, Ivan W. Brown, D. Gordon Sharp, and Mary A. Poston, Duke University School of Medicine. 953 pp. Illust. 11th ed. Appleton-Century-Crofts, Inc., New York, 1957.

It is almost 50 years since the first edition of Hiss and Zinsser saw the light of day. Indeed, the present edition has been revised by two men who used the textbook as students and later as teachers. There is clearly little need to recommend so well-tried and well-written a favourite. Suffice it to say that the present edition maintains the high standard set by its predecessors.

Microbiology is moving forward with ever-increasing speed, and the present authors have found it necessary to revise extensively or completely rewrite almost every chapter in the present edition. The sections on bacterial physiology, immunology and the viruses have been completely rewritten and enlarged, while a new chapter has been added on blood groups and immunohæmatology. Essential information on the susceptibility of micro-organisms to the newer antibiotics has been included in the text, and there are notes on the favourable and unfavourable effects of ACTH and cortisone. The printing and production of this new edition are excellent.

CHARLES TURNER THACKRAH: THE EFFECTS OF ARTS, TRADES AND PROFESSIONS ON HEALTH AND LONGEVITY. With an introductory essay on HIS LIFE, WORK AND TIMES. A. Meiklejohn, University of Glasgow. 238 pp. Illust. E. & S. Livingstone Ltd., Edinburgh and London; The Macmillan Company of Canada Limited, Toronto, 1957. $4.25.

Charles Turner Thackrah, 1795-1833, lived in high days. Dr. Meiklejohn of Glasgow presents the highlights of those days as a background to Thackrah and his works. To mention only a few of the names, there were Nelson, Wellington, the younger Pitt, Fox, Peel, Wilberforce, Walter Scott, Macaulay, Turner, Constable, Faraday, Humphrey Davy, Byron, Shelley, Wordsworth, and Keats (a fellow-student at Guy's in 1815). Thackrah was a pupil of Astley Cooper who recognized his pupil's great talents. But Thackrah was very ambitious, too: he wanted to lead, dominate, direct and, thus, to teach. Starting practice in Leeds, he provided private courses in anatomy, including physiology. Soon, seeking a wider audience, he gave and published popular lectures on medical topics. This drew proper rebuke but one of his medical critics, admiring notes based on Thackrah's own experiments, concluded: "We trust, therefore, that no long time will elapse before he again appears before the world as an author, not of popular lectures, but of work (which he seems well able to execute) that may take its place amidst the standing medical literature of his country." They had not long to wait. Frankly pointing out patent fallacies of practice, Thackrah excited the hostility of his confrères. But, he noted, "I will have one satisfaction, at least, that my remembrance shall not perish." Nor should it. Realizing that no medical training could ever supply all the answers, he continued, throughout his life, to study disease and the patients themselves, their homes, their work and their habits.

In the 1831 treatise now reproduced by Dr. Meiklejohn, Thackrah recorded, for many of the vocations of his day, the observed customary disease, age of death, and such data as age, wages, physical and mental stress, temperature, humidity, dust, noise, smells, ventilation, eye-strain, hours of work, specific exposure (metallic and otherwise), diet, alcoholic beverages, smoking, etc. From these data he studied the relationship of various factors to health and disease, incriminating some and clearing others. He clearly recognized the influence of the mind on the body and, with practical suggestions for the relief of an unhealthy state of affairs, appealed to employers to give personal consideration to both the workers and their environment, emphasizing that correction was not only humane but also of economic benefit. He was thus a modern industrial hygienist. As his brief years passed, many of those who had been his enemies became his admirers and his friends. Working in co-operation with them, he was one of the founders of the Leeds Medical School, where his portrait now hangs. At the age of 38 he died from tuberculosis. The man and his works well merit the fascinating book which Dr. Meiklejohn has now given us.

ATLAS OF EYE SURGERY. R. Townley Paton, Clinical Professor of Ophthalmology, New York University School of Medicine, and Herbert M. Katzin, Manhattan Eye, Ear and Throat Hospital; illustrated by Daisy Stilwell. 248 pp. Illust. McGraw-Hill Company of Canada Ltd., Toronto, 1957. $15.75.

This beautiful book, composed by Townley Paton and Herbert Katzin and illustrated by Daisy Stilwell, is a pleasure to look through.

The book has been divided into 11 sections, each illustrating one branch of ocular surgery. At the beginning of each section is a short text which gives a few comments on the procedures to be illustrated. No attempt is made to cover the literature; rather, the authors' opinions are given, with explicit instructions and advice. They form, in each case, an excellent commentary on the illustrations which follow. Included is an index of instruments.

The illustrations themselves are black-and-white line drawings, simple, and leaving no doubt of their meaning. Frequently an illustration of the surgeon's view of the eye will be accompanied by a sectional view of the eye, thus forming an excellent portrayal of the three dimensions of the techniques.

While all sections of the book are well done, two might be mentioned particularly. That on cataract extraction illustrates the major steps in both extracapsular and intracapsular extraction, extraction with a capsular forceps and with the erisophake, and finally several different methods of suturing are fully illustrated. The section on operations on the extraocular muscles is very clear. This is a difficult subject to illustrate—the exact positioning of many fine sutures, the displacement of conjunctiva, Tenon's capsule and the muscles themselves must be all accurately portrayed. The authors and the illustrator have succeeded admirably. Immediately

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following the text of the section on operations for retinal detachments are two pages of charts showing the location of the extraocular muscles and other major structures on the surface of the globe. These can be used as a guide when reviewing the section on operations on the extraocular muscles.

This is a worthy book and will give much pleasure to those who look through it. There is little text to read but the illustrations must be studied with care; the detailed points of technique have been shown with accuracy in the drawings and must be studied closely. The book can be recommended to anybody doing or studying ocular surgery.

CLINICAL TOXICOLOGY. The Clinical Diagnosis and Treatment of Poisoning. S. Locket. 772 pp. Illust. Henry Kimpton, London, 1957. $21.00.

This large volume covers many poisons that are old and many that are new—insecticides, chemical warfare agents, and recently introduced therapeutic drugs. These are considered from the viewpoint of an experienced clinician who has diagnosed and treated many cases of poisoning. If at times he appears a bit too didactic, it is because of the errors he must have seen other clinicians make. The chapters on basic treatment in poisoning, poisons, fluid and salt balance, and the toxicity of some therapeutic agents, are full of good advice to all doctors. The book is divided well into chapters in which drugs are discussed on the basis of their pharmacological or chemical actions or their chemical composition; no such division, however, can eliminate some overlapping of data.

The book is too large for the doctor's bag but would be a valuable addition to his library or to the library of a hospital or teaching institute. The chapters on chemical identification and on identification of poisonous plants would be useful to a hospital technician or to a doctor who wishes to identify a drug or plant. It contains many useful references.

SOME EFFECTS OF IONIZING RADIATION ON HUMAN BEINGS: A Report on the Marshallese and Americans Accidentally Exposed to Radiation from Fallout and a Discussion of Radiation Injury in the Human Being. U.S. Atomic Energy Commission; edited by E. P. Cronkite, V. P. Bond and C. L. Dunham. 106 pp. Illust. U.S. Government Printing Office, Washington, D.C., 1956. $1.25.

This account is based on the March 1, 1954, experimental detonation of an atomic weapon which was followed by a change of wind resulting in a fallout on Marshallese and U.S. Navy personnel. In all, 267 human beings were exposed; all recovered without serious sequelæ. Fortunately for them, natives swimming in the sea washed off a good amount of the fallout material. The exact degree of radiation to which these subjects were exposed is difficult to evaluate because of duration of exposure, wide variety in energy regions, and the geometry of exposure (spherical, in a radioactive cloud). Itching and burning of the skin was followed by epilation, conjunctivitis and lacrimation, caused by the highly alkaline calcium oxide which predominated in the fallout material from the incineration of coral adherent to the fission product. Nausea, vomiting and diarrhœa subsided within three days of exposure without any particular therapy. In general, the intensity of the symptoms was proportional to the degree of exposure. There was granulocytopenia in 10% of a group of patients between the 33rd and 43rd day; platelets also were reduced in numbers. There was no apparent correlation between skin and blood lesions. Regrowth of hair began at the ninth week. Examination of the carcasses of animals exposed with the human beings revealed that over 90% of the radioactivity was localized in the skeleton. Fish and clams had a much lower concentration of the alkaline and rare earths, and a body burden considerably higher than that of the land animals.

It is fortunate that this unforeseen complication did not prove any more lethal. The Atomic Energy Commission personnel certainly made the most of this unexpected experimental material in the thoroughness with which they followed the clinical course of their patients. Although long-range observation is not available yet, the findings disclosed in this pamphlet may give some degree of hope for that part of the population whose degree of exposure would be roughly similar in the event of atomic warfare.

THE EYE IN GENERAL PRACTICE. C. R. S. Jackson, Royal Infirmary, Edinburgh. 152 pp. Illust. E. & S. Livingstone Ltd., Edinburgh and London; The Macmillan Company of Canada Limited, Toronto, 1957. $3.60.

In his preface, Dr. Jackson states that he had been a general practitioner, living in a town some distance from an eye specialist. Realizing the problems which general practitioners face in relation to eye disease, he wrote this book as an aid to the general medical man. The book is small, almost pocket size, and is not long. Its usefulness lies in the choice of subject matter made by the author. The chapters have been tailored to give the general practitioner the signs and symptoms, diagnosis and treatment, and disposal of the common illnesses of the eye which he may see. Discussion of each condition is kept to a minimum, the material which is present being obviously the author's judgment of what will be useful to the general practitioner.

The first part of the book discusses diseases of the eye itself. Each part of the eye is taken up in order, following which there is a discussion of refractive errors, squint, glaucoma and injuries to the eye. The chapter on glaucoma is particularly interesting: the author has chosen to divide it into childhood glaucoma, simple glaucoma, acute congestive glaucoma, and secondary glaucoma. On this framework he almost dramatically presents the characteristic appearance and course of each disease. This direct, simple description of a complex subject should be most useful to the general practitioner. The second part of the book describes the eye as related to diseases of other parts of the body. This section includes cardiovascular, intracranial, and metabolic diseases.

The author has made a good choice of subject matter. The book testifies to the fact that Jackson was a practitioner and is aware of the general medical man's problems. A busy practitioner who wants a direct and simple answer to an ophthalmic problem may find it here.

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WORLD MEDICAL PERIODICALS. 2nd ed., prepared by L. T. Morton under the auspices of a committee jointly sponsored by the World Medical Association and the International Union of the Medical Press. 340 pp. World Medical Association, New York, 1957. $6.00.

A few years ago WHO and UNESCO made themselves jointly responsible for the publication of an index to world medical periodicals. The actual work of compilation was done by Mr. L. T. Morton of the *British Medical Journal,* and Mr. Morton has now prepared a second and enlarged edition of this work, this time under the auspices of the World Medical Association. The new edition includes titles of journals of medicine, pharmacy, odontology and veterinary medicine which were in existence in 1957, together with those of the better known journals which have ceased publication since the beginning of the century. The new edition contains about 1400 new titles, while 600 entries from the first edition have been deleted. Appendixes give a list of the principal international abstracting and indexing journals. The work now appears in four languages – English, French, Spanish and German. There is also an index of journals by country and by subject. Where possible the address of the publishing house has been listed for each journal.

This second edition of an invaluable reference work is essential for all workers in medical bibliography. It is unfortunate that the influence of the great indexing journals of the United States has made it impossible so far to adopt this international system of abbreviations in North America. It is to be hoped that at some future date it will be possible to obtain complete uniformity in journal abbreviations throughout the world. When that happens, Mr. Morton's list of abbreviations will have the strongest claims for universal application.

THE CHANGING PATIENT-DOCTOR RELATIONSHIP. Martin G. Vörhaus. 310 pp. Illust. Horizon Press Inc., New York, 1957. $3.95.

This book has been written to show the patient-doctor relationship in the fullest capacity. The author very ably discusses the patient's status before he became ill and also the effect of the doctor's upbringing and sociological background. The chapter entitled "The Doctor–Builder of Bridges" shows marked insight into the methods of bringing the patient, even the reluctant one, to have confidence in his physician and to unburden his whole story and the worries of his illness. The chapters dealing with the eight tools of doctor-patient relationship have many novel applications and examples of how the tools should or may be used by the physician. The latter part of the book is taken up by five long case histories full of human interest and showing well the development of the best in the doctor-patient relationship.

The reader may at first be depressed by the repetition of examples and trivialities, but as he delves further into the book he will find a great understanding of human nature. The older reader will see many applications to his own practice; and the student will learn how to develop this relationship and its application to his future problems. The illustrations are commendably apposite. This book contains much of what used to be known as "common sense"–the most unusual thing in the world.

HEMORRHAGIC DISEASES. Armand J. Quick, Marquette University School of Medicine. 451 pp. Illust. Lea & Febiger, Philadelphia; The Macmillan Company of Canada Limited, Toronto, 1957. $9.50.

This book gives a most lucid and authoritative discussion of a notably complicated subject, but this is, of course, no surprise, as the author is a pioneer in more recent scientific exploration of the field of blood coagulation, to which he has contributed many well-known tests used daily in hospital laboratories. The book comprises all facets of hæmorrhagic diseases from hypoprothombinæmic states to venous thrombosis and includes a good deal of medical history. It is most refreshing to find not only factual material, but also much discussion and argument, which has sparked many a medical meeting in the past decade, preserved in this book. In the second part of this volume the author presents 25 laboratory tests used in the investigation of this group of diseases, many of which have only recently been devised. Needless to say, the bibliography is excellent. Dr. Quick's *Hemorrhagic Diseases* is required reading and reference for anybody dealing with this aspect of disease, from general practitioner to laboratory worker.

MAGNETIC REMOVAL OF FOREIGN BODIES: The Use of the Alnico Magnet in the Recovery of Foreign Bodies from the Air Passages, the Esophagus, Stomach and Duodenum. Murdock Equen, Founder and Chief of Staff of Ponce de Leon Infirmary, Atlanta, Georgia. 94 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1957. $5.00.

Dr. Murdock Equen is a pioneer in the use of the Alnico magnet for the removal of foreign bodies from the air- and food-passages. His first experience in the use of the Alnico magnet was in 1944 and since then he has used the technique in well over 200 cases.

In this book Dr. Equen describes the magnet technique and the apparatus necessary for the management of foreign body cases. Roentgenological diagnosis is discussed. Case histories are presented to illustrate the technique used in the removal of ferrous foreign bodies from the air passages, œsophagus, stomach and duodenum. The very few failures are reported, and the disadvantages, contraindications and precautions are pointed out.

The reviewer has made use of the Alnico magnet for the past seven years in the manner described in this book and has found it invaluable. It is his opinion that the use of this technique has been widely neglected; from personal experience it is known that laparotomies have been carried out where the magnet technique would most likely have been successful.

This work is written in an informal, conversational style and is well illustrated, but most important, it shows how safely and simply most ferrous foreign bodies in the air- and food-passages may be removed. This book should be read by all doctors who are concerned with the problem.

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THE LONG-TERM EFFECTS OF EXPOSURE TO NITROUS FUMES

Seven patients who had recovered from an episode of acute pulmonary œdema following exposure to nitrous fumes were studied by Becklake and his coworkers (*Am. Rev. Tuberc.*, 76: 398, 1957) for periods up to 64 months after the accident. There was fairly good agreement between subjective complaints and demonstrable disturbances of physiologic tests.

The usual pattern of physiologic disturbance was reduction in maximal breathing capacity and increase in expiratory resistance values. Two patients showed an increase in the absolute value of residual volume as well as an increase in its percentage value of total lung capacity. Such changes in the test values are commonly associated with the presence of emphysema or bronchospasm. Neither of these conditions was thought to be present in the reported cases. A possible explanation seemed to be that the patients had some degree of bronchial and bronchiolar narrowing due to the healing by fibrosis of various degrees of bronchiolitis obliterans following exposure to nitrous fumes.

It should be noted that this type of exposure may be encountered in gold miners, and possibly in farmers (silo-filler's disease).

INTERNATIONAL CLASSIFICATION OF DISEASES

Medical statisticians everywhere will be interested to know that the World Health Organization has recently published the first volume of a new edition of the Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death, amended in accordance with the 7th Revision of the International List of Causes of Death. No major revision of the actual classification has been made, but many details have been added here and there in the attempt to ensure that mortality and morbidity statistics published in different countries will be comparable. The second volume of this work, the Alphabetical Index, will be published soon.

CALOMEL AND PINK DISEASE

Millions of teething powders containing calomel have been sold but relatively few infants have developed symptoms of mercurialism. However, from time to time unfavourable reactions and some deaths have been reported in the medical literature. These unfavourable reactions to calomel have been regarded as due to individual hypersensitivity. Barrett (*M. J. Australia*, 1: 714, 1957) has now shown that this hypersensitivity has a chemical basis. Calomel is practically insoluble in water and in acids; degree of toxicity will depend only on its rate of conversion to mercuric compounds. Calomel is decomposed by strong alkalis, the rate of decomposition depending on the pH of the medium; thus harmless calomel is rapidly converted into toxic mercuric oxide at a pH of 8.7 or higher.

In acrodynia (pink disease), derangements of the digestive apparatus such as acute enteritis, constipation, achlorhydria and anorexia may be associated with an

alkalinity of the intestinal contents suitable for the decomposition of calomel. Mercury was found in the urine of 92.7% of a group of patients with acrodynia. Acrodynia and mercury poisoning have many symptoms in common.

The author suggests that some of the symptoms ascribed to pink disease are predisposing conditions to mercury intoxication from the ingestion of calomel, rather than early symptoms. In addition to calomel the other factor in the etiology of pink disease is the pH of the intestines.

A LIBERAL EDUCATION

The *Oxford Dictionary* defines a liberal education as an education fit for a gentleman. This poses two questions. What is a gentleman? Who are the present-day gentlemen? Throwing out the out-moded dictionary definitions, such as "a man of gentle birth attached to the household of the sovereign", we seem to come to the idea that the modern gentleman is a man who by virtue of his social position is qualified to give some leadership in his community. Since power has now passed from the princes and their adherents, religious leaders and merchants to the technologists, it would seem reasonable to assume that the technologists are entitled to the appellation of "gentlemen" and therefore to a liberal education. Indeed, without such an education they are unlikely to be able to solve the enormous problem confronting us now—the adaptation of society to a rapidly changing environment.

Such are no doubt the thoughts which stimulated Sir Eric Ashby to write his address "Humanities for the Technologist" (*Nature*, 180: 624, 1957) in which he traces the tendency in the Anglo-Saxon world for technologists to be ill-informed in the humanities, and the efforts made to correct this. Now technology is the application of science to the needs of man and society, and therefore everyone in the medical profession is directly concerned with the substance of Sir Eric's lecture. Not content with reiterating the well-known thesis that technologists should know something of the humanities, he goes further and suggests that certain of the humanities are an integral part of the application of science. He urges the universities not to "stick a few bits of the humanities on the outside of the fabric of higher technology", but to make those humanities an integral part of the student's learning. Transferred to the field of medical education, his suggestions would include courses on: (a) ethics and jurisprudence, with some discussion of the principles of law and justice; (b) the history of science, with emphasis on the social effects of changes in science and medicine; (c) political theory and institutions, and their relationship to medicine; (d) sociology and social anthropology; (e) linguistics and communication. In addition the student should take a course in which he is compelled to read some of the classics of medical science.

Within the last few decades, our universities have already taken steps to combat the purely technological education of the medical student; maybe these steps are not enough, and more is required if the physician is to take his rightful place as a leader in a rapidly changing social environment.

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LONG-TERM STEROID THERAPY IN ALLERGIC DISEASE

It is becoming increasingly evident that, until specific therapeutic agents become available for certain diseases, steroid therapy, although non-specific and productive of annoying and sometimes serious side effects, will continue to be used, despite the loud and painful cries of medical purists.

The field of allergy is one in which the newer synthetic steroid agents, such as prednisone and prednisolone, are enjoying an increasing vogue, partly because they are *relatively* innocuous, and partly because the science of immunology has not yet progressed to the point at which theory and practice are capable of merging.

It becomes our responsibility therefore to describe clearly the undesirable side effects that may result from prolonged treatment with such agents, as well as the means by which such complications may be avoided. This has been well and clearly done in a recent report,[1] and no harm can be done by repeatedly bringing this subject to the attention of physicians.

Five major complications, especially dangerous in children, result from hormone overdosage: Cushing's syndrome, growth arrest, diabetes mellitus, osteoporosis and psychosis. In addition, there is of course an increased susceptibility to bacterial and viral infection, and the possibility of gastro-intestinal hæmorrhage and periarteritis.

However, the results of this particular study, involving 39 children and 113 adults, indicate that dramatic therapeutic results can be expected from prednisone and prednisolone in both groups; that dosage should be kept to the minimum amount capable of producing the desired effects; that close surveillance of all patients is required, for the early detection and treatment of infection or metabolic and psychiatric deviations; and that, if these precautions are taken, there is much benefit to be offered to patients from a rational or carefully supervised course or series of courses of steroid therapy in allergic disease.

REFERENCE

1. BUKANTZ, S. C. AND AUBUCHON, L.: *J. A. M. A.*, 165: 1256, 1957.

PHYSICAL THERAPY, ESSENTIALS OF A HOSPITAL DEPARTMENT

If you are searching for answers to questions of any kind in relation to a physiotherapy department in a hospital, you should read a little booklet published by the American Hospital Association. It is a rewrite, just released, of a 1949 edition, with the title "Physical Therapy, Essentials of a Hospital Department". It gives an appraisal by a six-point gauge of the need or not for such service in any hospital. In an orderly and factual presentation it deals with space, equipment, personnel, finance and other features, even to the inclusion of working diagrams drawn to scale. Typical expressions revealing that the authors have a grasp of the principles are these: "The quality of physical therapy service . . . depends upon the calibre of the staff responsible for that service." "Of the environmental factors which condition the effectiveness of physical therapy . . . the key note is space . . . functionally planned space."

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SHELTERED WORKSHOPS

In the U.S.A. and Europe there are a number of sheltered workshops designed to provide work for the physically or mentally handicapped under special conditions which will minimize their disability. The Ontario Association for Retarded Children in its recent newsletter points out that the first sheltered workshop for the mentally retarded has begun operations in Metropolitan Toronto and that a second sheltered workshop is due to open soon in London, Ontario. The object of the sheltered workshop is to develop good work habits and attitudes, to provide initial work experience with understanding and guidance, to provide simple training and increase productivity rate, and to provide a realistic setting for determining an individual's likelihood of ultimate successful placement in employment outside the workshop. In the Toronto workshop, about half of the mentally retarded trainee's time is devoted to production on sub-contracts obtained from industry, while the other half is devoted to further training designed to bring out the trainee's skills and capacities.

ANTIBIOTIC TREATMENT IN DYSENTERY

In Scotland bacillary dysentery appears to be much more widely prevalent than it is in Canada. Clinical cure is quickly established by the use of sulfonamides, but sulfonamide-resistant strains appear early, rendering bacteriological cure difficult or impossible by this means. It now appears that the spread of this disease has become more like that of a respiratory infection such as measles, than of the food-borne infections with which it has always been linked. Thus a rapid and safe method of inducing freedom from infection would be of great importance. Johnson and Landsman (*Scottish M. J.*, 2: 383, 1957) record the results of consecutive studies on 479 cases of Sonne and Flexner dysentery treated with a variety of antibiotics used alone or in combination with a sulfonamide, and in varying doses. The doses of the antibiotics were varied, and only one-quarter of the cases studied received full standard dosage. However, with doses of oxytetracycline or chlortetracycline as low as one-quarter of standard dosage, bacteriologic cure was achieved in 96% of cases. They were equally effective, but vomiting and diarrhœa occurred twice as frequently with chlortetracycline (15.4%) as with oxytetracycline (8.6%). With both antibiotics, side effects progressively decreased as the dose was reduced. All other antibiotics had much higher failure-rates, and oxytetracycline is therefore recommended as the antibiotic of choice in the treatment of bacillary dysentery. The recommended dosage is as follows: under 6 months, 25-50 mg. a day; 1 year, 100 mg.; 2-5 years, 150-200 mg.; older children, 250 mg.; adults 250-500 mg.

HEALTH SERVICES FOR THE INDIGENT

Because of the diversity of patterns of health care, it is difficult to estimate the extent to which health services are provided in Canada for public assistance beneficiaries and other indigents. A recent monograph entitled "Health

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Services for Public Assistance Recipients in Canada" published by the Research and Statistics Divisions of the Department of National Health and Welfare in a new series entitled "Health Care Series" attempts to give a picture of the provision of such services. This monograph does not confine the term "public assistance beneficiary" to persons in receipt of some form of aid from public funds, but includes the so-called "medically indigent" who though normally self-supporting require assistance with all or part of hospital or medical expenses. The population covered does not include those provided for by the Federal Government, such as sick mariners, armed services, Indians and Eskimos, or those covered by such programs as tuberculosis and cancer programs. The monograph notes the trend from provision on a municipal basis to provision with substantial assistance from the province. At present British Columbia, Alberta, Saskatchewan, Ontario and Nova Scotia have formal, provincially sponsored health care programs for some or all of their public assistance recipients, while three of these provinces (British Columbia, Alberta and Saskatchewan) also provide hospitalization. Elsewhere the provision of medical care is mainly on a local and discretionary basis.

It is very difficult to estimate accurately the total number of persons involved, but this monograph suggests that under the organized programs in the provinces mentioned above, approximately 2% of the population in 1955 were eligible to receive medical and allied services. The total expenditure in 1955 across Canada might amount to nearly $50 million, or approximately 6% of the total expenditure made in the country for the purchase of all types of personal health care and treatment services.

MENTAL HEALTH STATISTICS 1956

The Dominion Bureau of Statistics has recently published the 25th in the annual series of mental health statistics of Canada. It should be noticed that in the present report emphasis has been placed on the different classes of institution concerned. Psychiatric units of general hospitals must be set apart because of differences in their method of treatment, and their emphasis on intensive short-term care. Many new tables have therefore been added this year to show data classified by type of institution, not only for psychiatric units but also for other specialized types of mental institution. These should meet the requirements of those who want to see separate figures for the distinct classes of hospital.

A new high level was reached in first admissions for mental illness in Canada in 1956; 25,000 persons were admitted, a rate of 156.4 per 100,000 population. Thus the chance of a resident of Canada being admitted for the first time to a mental institution has risen from 1469:1 in 1940 to 640:1 in 1956. The statisticians point out that this need not imply an increased amount of mental illness, for there has been a greater

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organization of facilities in general hospitals of recent years. An informed guess, however, indicates that the total volume of mental illness is indeed up. Figures for readmissions remain about the same as in previous years. The total number of discharges has reached a record level. Unfortunately the significance of this figure is not entirely evident, since work has not been completed on the total population at risk, i.e. the total number of mental patients dischargeable. Although more patients also died in mental institutions in 1956 in Canada than ever before, this high total really represents a record low proportion of total deaths to discharges. The statisticians comment that the statement often made that mental institutions have more patients than all other types of hospital combined is not true for Canada.

DRUG INDUCED PEPTIC ULCER

The administration of certain therapeutic agents may be complicated by the development or reactivation of peptic ulcer, with hæmorrhage and perforation. The mechanisms involved are not understood completely, but they undoubtedly include stimulation of gastric secretion and decrease in the resistance of the gastroduodenal mucosa locally. The gastric and duodenal ulcerations observed experimentally after Mecholyl are attributable to excessive gastric secretion resulting from vagal stimulation, although vascular effects may be involved. Priscoline and other adrenergic blocking agents increase gastric acidity indirectly, chiefly by suppressing inhibitory sympathetic nerve impulses, permitting greater vagal activity. Histamine can produce or reactivate peptic ulcer as a result of the tremendous direct stimulation of gastric acidity. Cinchophen may cause peptic ulceration after oral or parenteral administration, presumably as a result of gastritis or duodenitis, although other factors, including increased gastric secretion, may be implicated. Gastro-intestinal bleeding, in patients with and without peptic ulcer, not infrequently is related to the ingestion of aspirin. Salicylates may increase gastric acidity, perhaps as a result of direct stimulation of the parietal cells. Vascular congestion, hæmorrhages, erosions and superficial ulceration have been observed in areas of gastric mucosa in direct contact with aspirin.

The administration of ACTH and the adrenal steroids also may be complicated by the development of peptic ulcer and ulcer-type distress. Hæmorrhage and perforation are not uncommon. Many of the ulcers are gastric. Symptomatic relief and healing occur with antacid therapy, despite continued steroid therapy. This complication seems comparatively rare. Not all lesions occurring during the administration of adrenal steroids are attributable to the medication; other etiologic factors include those responsible for the natural incidence of peptic ulcer generally and in the diseases treated, emotional problems and concurrent

ulcerogenic medication, such as aspirin and phenylbutazone.

Gastric secretion does not increase in most cases during the immediate or prolonged administration of very large quantities of ACTH and adrenal steroids. Adrenocortical hyperfunction does not appear to be a primary mechanism in the usual peptic ulcer of man. Nevertheless, the administration of ACTH and the adrenal steroids has been followed by a significant number of ulcers; lowered tissue resistance may be the most important factor.

Phenylbutazone orally or intramuscularly increases the concentration of HCl occasionally, and may cause reactivation of peptic ulcer, with hæmorrhage and perforation. Gastric secretion is stimulated in patients after vagotomy and bilateral adrenalectomy. Inflammation of the gastric mucosa, with direct stimulation of parietal cells, may be an important mechanism. Reserpine orally, in dosages of 1 mg. daily, usually does not increase gastric secretion; however, daily quantities of 2 mg. or more may elevate the volume of secretion and gastric acidity. This rise is especially pronounced following reserpine intravenously, and may occur in patients after vagotomy and in the absence of significant eosinopenia. The secretory effect may be due to central suppression of inhibitory sympathetic nerve impulses or to the endogenous secretion of histamine. Excessive secretion of serotonin probably is not involved. The drug-induced increases in gastric secretion and reactivation of peptic ulcer in occasional patients only suggest that individual susceptibility is an important factor determining the tendency to peptic ulcer.—J. B. Kirsner, *Ann. Int. Med.*, 47: 666, 1957.

OVERPROTECTION AND UNDERPROTECTION OF THE CARDIAC PATIENT

Certain aspects of the overprotection and underprotection of cardiac patients including bed rest, smoking, diet, physical activity and work are reviewed by Lee and Bryner (*Postgrad. Med.*, 22: 411, 1957). In their opinion, the chair treatment of coronary thrombosis with myocardial infarction is, in certain instances, preferable to six weeks of strict bed rest. Cigarette smoking is inadvisable for persons with coronary artery disease who have abnormal ballistocardiographic responses after smoking. A low animal fat diet and careful weight control are recommended for patients with manifest coronary artery disease.

Advice to patients about physical activity should be based on a careful history of the patient's response to such activity, supplemented by actual observation of the patient by his physician during and after any physical activity. Most patients with cardiovascular disease are able to work and should not be advised to change their working habits without careful consideration of all the factors involved. The goal of the physician should be to permit the patient to live the best life possible within the limitations, if any, imposed by the disease.

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MEDICAL NEWS *in brief*

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TRANS-ATLANTIC MEDICAL CONFERENCE

On Wednesday, December 4, the second trans-Atlantic medical conference in history took place. Scientists in the United States and Great Britain were joined by the new underseas cable to exchange information on cancer chemotherapy. Three medical centres were linked – Philadelphia, where the American Medical Association was holding its 11th Annual Clinical Meeting; London (England), where a special panel was collected in Barnes Hall of the Royal Society of Medicine; and Bethesda, Maryland, where the program was heard by scientists at the National Institutes of Health. The hour-and-a-quarter conference on advances in the chemotherapy of cancer was sponsored by the Americal Medical Association and the Royal Society of Medicine in co-operation with Smith, Kline & French Laboratories. The conference was designed to honour the 125th anniversary of the description of lymphadenoma as a disease entity by Thomas Hodgkin (1798-1866), pathologist to Guy's Hospital, London.

POSTGRADUATE COURSES IN NEW YORK

New York University-Bellevue Medical Center's Post-Graduate Medical School offers the following postgraduate courses, to be given or started during the month of February 1958:

Department of Medicine

Modern Trends in the Diagnosis and Treatment of Congenital Heart Disease: a full-time course of three days' duration, February 3-5.

Arthritis and Related Disorders: A part-time course of five sessions, Tuesdays, 9 a.m. to 5 p.m., starting February 11.

Auscultation of the Heart: A three-day, full-time course, February 24-26.

Cardiac Roentgenology: A two-day, full-time course, February 27 and 28.

Department of Dermatology and Syphilology

Seminar in Dermatology and Syphilology (designed for general physicians): A full-time intensive course of five days' duration, February 17-21.

Department of Orthopedic Surgery

A full-time course of three days' duration, February 19-21.

Department of Ophthalmology

Annual Review of Ophthalmological Advances: A 2½-day conference, 9 a.m. to 4 p.m., Thursday and Friday, and 9 a.m. to 12 noon, Saturday, February 20-22.

Department of Radiology

Radiobiology: A part-time course, 5.30 to 7.30 p.m., Wednesdays, February 5 - May 28.

Department of Pediatrics

Review of Clinical Pediatrics: A full-time course of 5½ days' duration, February 17-22.

Clinical Pediatric Cardiology: A half-day course of 10 sessions, 9 a.m. to 12 noon, Wednesdays, February 19 - April 23.

Department of Otorhinolaryngology

Seminar in Recent Advances in Otolaryngology: An advanced course of one week's duration, February 17-21.

For further information, write: Associate Dean, N.Y.U. Post-Graduate Medical School, 550 First Avenue, New York 16, N.Y.